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Gen 53.B(5)(D)(A)

JEFFERSON CIRCUIT COURT

DIVISION NINE

- - - - -

BROWN & WILLIAMSON :

TOBACCO CORPORATION, :

Plaintiff, :

vs. : Case No. 95-CI-06560

JEFFREY S. WIGAND :

Defendant. :

- - - - - --

The videotaped deposition of Jeffrey S. Wigand, the Defendant herein, was taken before Special Commissioner Richard A. Revell, and reported by Thomas F. Runfola, a Registered Professional Reporter, pursuant to notice, at the offices of Middleton & Reutlinger, 2500 Brown & Williamson Tower, Louisville, Kentucky, on Wednesday, July 17, 1996, at 9:00 o'clock a.m.

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VOLUME 5

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THE VIDEOGRAPHER: Going on the record, the time is approximately 9:04 a.m.

JEFFREY S. WIGAND,

having been previously sworn, as hereinafter certified, deposes and says as follows?

EXAMINATION

BY MR. SHEFFLER:

Q. Good morning, Mr. Wigand.

A. Good morning.

Q. Now, sir, you have on a number of occasions talked about a substance called coumarin.

A. Uh-huh.

Q. In Sir Walter Raleigh pipe manufactured by B & W, at least at some point in time that substance was in Walter Raleigh pipe tobacco?

A. That's correct.

Q. You are aware, sir, that coumarin is used today as a fragrance, an additive in soaps, it's used in perfumes, it's used in cosmetics, you are aware of that, aren't you?

A. I'm aware it may be used in

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there.

Q. You are aware that it occurs naturally in foods like parsnips, it occurs naturally in citrus oils, it occurs naturally in plants like tobacco; you are aware of that?

A. I'm aware of that.

Q. Now, are you aware, sir, that there is a compound called coumadin?

A. Yes, I am.

Q. And do you know what coumadin is used for?

A. It's an anticoagulant, it's called also warfarin.

Q. And warfarin is used for what?

A. Sometimes it's used in a rat poison.

Q. And coumadin is used in a rat poison and warfarin is used in a rat poison because it is an anticoagulant; isn't that right?

A. I believe that's what it's used for.

Q. And it's also used in rat poison

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with ground glass because that will cause the rats to hemorrhage and die; isn't that right?
A. I believe that may be the mechanism.
Q. Okay. But coumadin is not coumarin, is it?
A. Most clearly it's not.
Q. In fact, coumarin is not an anticoagulant, is it?
A. Coumarin is not an anticoagulant, no, it's not.
Q. And so anybody who said that coumarin was a rat poison would be totally irresponsible, wouldn't they?
MR. ALDOCK: Objection. What anybody else would think about --
Q. Mr. Wigand --
THE COURT: Totally irresponsible -- I'm going to sustain the objection to that. It may be incorrect but I don't know that that would make they meant irresponsible.
Q. Mr. Wigand, would you agree that

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it would be incorrect to say that coumarin is a rat poison?
A. Technically it would be incorrect to say coumarin is coumadin. But they are the same chemical family.
Q. Would it not be incorrect, sir, would it not be wrong to say that coumarin was used in rat poison?
A. It would be technically incorrect to say that coumarin is used in rat poison? I think it would be technically incorrect.
Q. It is not correct to say coumarin is a rat poison, is it, sir?
A. I think I just answered the question.
Q. So if anyone had said coumarin is a rat poison, knowing that it was coumadin, not coumarin, that was used in rat poison, they would be saying something that was false, wouldn't they?
A. It depends on who is saying it.
Q. Well, if you said it, sir, you would be saying something that's false,

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wouldn't you?
A. I don't think I have said that coumarin is in rat poison.
Q. You have never said coumarin is in rat poison?
A. I don't believe I ever said coumarin is in rat poison.
Q. You have never said, sir, down in Mississippi that coumarin was in a rat poison?
A. No, I did not.
Q. Sir, let me show you an article that was in the -- printed in the Houston Chronicle, January 27, 1996.
MR. SHEFFLER: We will mark that as the next exhibit.
- - - - -
Thereupon, Wigand Exhibit No. 37 was marked for purposes of identification.
- - - - -
THE COURT: 37, if anybody wants to note on the record.
BY MR. SHEFFLER:

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Q. Take a chance to look that over, sir. I want to direct your attention to the last paragraph in the article.
MR. ALDOCK: That's testimony, counsel. If are you going to cross-examine him on testimony that's one thing. If you are going to cross-examine him on a newspaper article, that's something else.
Q. Well, let me just ask him about the newspaper article, if I may. Sir, you see where it says, "In addition, Wigand testified that the company added a dangerous substance called coumarin which is present in some rat poisons."
Does that refresh your recollection, sir, that you did, in fact, state, after you were terminated from B & W, that coumarin is a is a rat poison and that coumarin is a rat poison used in tobacco?
A. I never testified that coumarin was a rat poison. I may have testified that coumarin is used in rat -- in

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tobacco.
Q. You never testified that coumarin was a rat poison?
A. I don't believe I testified that coumarin is a rat poison. If I have, I would like to see that testimony, please.
Q. It is your testimony today, sir, that you never said under oath coumarin is a rat poison?
MR. ALDOCK: He said "I don't believe" and now you are asking the question again.
Q. Were you ever asked the question, sir, is coumarin a rat poison?
A. Was I ever asked if coumarin was a rat poison?
MR. ALDOCK: Ever in his life?
A. Ever in my life?
Q. Well, let's start -- were you ever asked whether coumarin is a rat poison after you were terminated from Brown & Williamson?
A. I definitely had those conversations while I was at Brown &

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Williamson.
Q. Well, did you tell anybody at Brown & Williamson that coumarin was a rat poison?
A. No, I think so Brown & Williamson took out, took coumarin out of its Kool cigarettes because there was an association of coumarin and coumadin with the rat poison. That was one of the that motivations for taking it out of Kool.
Q. Sir, coumadin is a different compound than coumarin.
A. They are in the same family.
Q. Coumarin is not an anticoagulant, is it. You know that, don't you?
A. I believe so, yes.
Q. And coumadin is a anticoagulant. You know that, too, don't you?
A. Yes, I do.
Q. You know that coumadin is used pharmacologically as an anticoagulant; isn't that right?
A. Yes. I think I have already

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stated that.
Q. But you know that coumarin is not so there is no reason that coumarin would be taken out of Brown & Williamson's pipe tobacco because it was similar to coumadin because it didn't have the same pharmacological properties, did it?
A. I don't think coumadin or coumarin were used for pharmacological purposes. Are you telling me that coumarin was used in pharmacological substances?
Q. Sir, did you tell anybody at Brown & Williamson that coumarin was a rat poison?
A. We had discussions at Brown & Williamson, the similarity between coumarin and coumadin.
Q. Did you have discussions at Brown & Williamson's where you said coumarin was a rat poison; yes or no?
A. I have nerve said that coumarin is a rat poison.
Q. Did you -- were you ever asked

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the question outside of Brown & Williamson's, after you were terminated, that coumarin was a rat poison?
A. Not that I can remember.
Q. Not that you can remember. How in the last year, sir?
A. That I have said coumarin is a rat poison?
Q. Yes.
A. Not that I can recall. I don't think I have ever seen ever said coumarin is a rat poison.
Q. Were you ever asked whether coumarin was a rat poison in the last year?
A. Was I ever asked? I may have been asked that, but I qualified it. It's of the coumarin family.
Q. You said that the coumarin family was a rat poison?
A. I said it may be related to coumarin.
Q. Your Honor, at this time, there is a transcript that I want to refer to

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that is under seal. And I believe in accordance with the court's order, in the case we should put this under seal as well.

MR. ALDOCK: Your Honor, this is in the, on the Internet and has been in the Wall Street Journal. I can't imagine that there is any issue with regard to this transcript.

THE COURT: Is there an order that puts this under seal? I'm not going to violate something --

MR. SMITH: Your Honor, I'm going to speak to that. Gordon Smith, I'm attorney of record in the case of Mike Moore versus Brown & Williamson and others pending in Mississippi. This transcript is presently subject to a sealing order by the court in Mississippi.

The court has said that that order will stay in place. And so it is necessary that this transcript be placed under seal.

THE COURT: Do y'all have any

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challenge to that?

MR. ALDOCK: I don't disagree about the order. I just said it's on the Internet.

THE COURT: I don't care. I'm not going to be -- I mean, there is no reason for me to be a part of any violation of that court's order. That would be inconsistent because I don't like people violating my orders. I mean, that's what court orders are for, for goodness sake. So as of now it's under seal.

THE VIDEOGRAPHER: Going off the video record.

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(Reporter's note: At this point, the testimony resumes in the Confidential and Sealed volume of the transcript.)

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THE VIDEOGRAPHER: Back on the video record.

BY MR. SHEFFLER:

Q. Have you said to anyone after you were terminated from Brown & Williamson that coumarin is a compound used in rat poison?

A. Have I ever said to anybody that coumarin is a -- I may have said to people that coumarin is of the same family as coumadin that is used in rat poison.

Q. Have you ever said coumarin was a compound used in rat poison?

A. Coumarin type -- the coumarin family is used in rat poison, yes. I may have said that.

MR. SHEFFLER: Let's mark this next, please.

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Thereupon, Wigand Exhibit No. 38 was marked for purposes of identification.

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BY MR. SHEFFLER:

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Q. Sir, I would like to direct your attention to Wigand 38, which is from the Chemical Marketing Reporter, dated 1996, February 12th. Entitled Tobacco Industry Battle Puts Coumarin in the Spotlight. Coumarin out of Tobacco. Do you see that headline?

A. Uh-huh.

Q. Do you see under there, where it says, quote, "This will be forgotten in about a week or two, says one flavor and fragrance industry analyst." He's, Wigand's, a loose cannon and has been totally irresponsible in saying coumarin is a rat poison.

There is no truth or data to substantiate the fact that coumarin is poisonous. Do you see that, sir?

A. Uh-huh.

Q. Do you agree with that statement, sir?

MR. ALDOCK: Which statement?

THE WITNESS: Which part of the statement?

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Q. Would you agree with the statement that coumarin – there is no truth or data to substantiate the fact that coumarin is poisonous?
A. I would agree with the statement that there is no data to support that coumarin is poisonous.
Q. Would you agree with the statement, sir, that Wigand is a loose cannon and has been totally irresponsible in saying coumarin is a rat poison?
MR. ALDOCK: Objection.
THE COURT: I don't know that there is any grounds for an objection but Dr. Wigand may answer.
THE WITNESS: I don't agree with that statement.
Q. Would it be irresponsible, sir, to say that coumarin was a rat poison?
A. That's somebody else's conclusion, not mine.
Q. Well, it's your conclusion, sir. Would it be irresponsible to say coumarin is a rat poison when coumarin is not a rat

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poison?
A. This is something that has been written by somebody who probably doesn't understand the science.
Q. Turn to the next page, sir. A spokesperson, a spokesman for R-P, the only U.S. producer of coumarin also says the chemical was not poisonous. Quote, "The product coumarin seems to have been confused with the similarly-named compound coumadin, which has pharmacological uses as an anticoagulant and is also used in rat poison." Do you see that?
A. Yes.
Q. But as you testified, sir, coumarin is not an anticoagulant, is it?
A. I don't think I ever testified that coumarin is not an anticoagulant.
Q. Okay. And coumadin is used in rat poison, not coumarin, isn't it?
A. The coumarin family is used for coumarin and coumadin, and the coumarin family is used in rat poison.
Q Coumadin falls within the mono

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cumarols and dicumarols group of man-made chemicals. Do you see that, sir?
A. Uh-huh.
Q. And is a derivative of cumarol?
A. Um-hum.
Q. The product coumarin that R-P manufactures is used as a fragrant additive and is not found in rat poison; isn't that correct?
A. That's what their statement here says.
Q. Would it not be irresponsible then for someone to say that coumarin was a rat poison when they knew that coumarin was not used as a rat poison?
A. Depends on the context and who is saying it.
Q. Okay, sir. If you said it, I guess it's not irresponsible?
A. I didn't say I was irresponsible, nor was I irresponsible.
Q. Okay, sir.
A. Brown & Williamson continued to used coumarin against its own additives

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guidance panel and took it out of its own product.
Q. Sir, but it was never used in a rat poison and it would be irresponsible to say –
A. Wait a minute.
Q. – that, wouldn't it?
A. I didn't say it was used as a rat poison.
Q. Sir, did you not say coumarin was a compound used as a rat poison?
A. I have not said that. Where have I said that? Because coumarin is –
Q. You said it in testimony in Mississippi.
A. I have not said that coumarin is used in rat poison.
Q. You said it was a compound, a form of a compound used in rat poison.
MR. ALDOCK: That's a different question. Form of a compound.
Q. Did you not say coumarin was a compound used in rat poison?
MR. SHEFFLER: Let's go back –

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your Honor, if I have to impeach him again with the testimony, I have to go back under seal. If I can't --

MR. ALDOCK: You have the sentence. The sentence you read was different.

MR. SHEFFLER: Look, I cannot refer to the transcript, sir. That's why I went off the -- because he testified --

THE COURT: If we go back through that again, I'm telling you, I'm going to recommend to Judge Mershon that this time be enlarged. We just can't keep going through this same --

MR. ALDOCK: Your Honor, this is unfair. He has agreed to the sentence that coumarin is not in rat poisoning. And then he changes it and he impeaches him with the word "form." Form of a compound, he agreed to that sentence.

MR. SHEFFLER: No, what I impeached him with is his testimony, your Honor, and I can't read it on this record. But it's exactly what I asked him before.

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A compound called coumarin is contained in rat poison. That's what the testimony was.

MR. MILLIMAN: Time out, time out. Are we off the record?

MR. SHEFFLER: Your Honor, I can't do this without violating the order. If we have to impeach him, I have to go off the record again.

THE COURT: Let's go off the record and do it one more time.

THE VIDEOGRAPHER: Going off the video record.

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(Reporter's note: At this point, the testimony resumes in the Confidential and Sealed volume of the transcript.)

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THE VIDEOGRAPHER: Back on the video record.

BY MR. SHEFFLER:

Q. Mr. Wigand, after some discussion off the record, there were certain questions asked to you by Judge Revell. We are going to put those portions now on the record.

"The Court: Can't we clear this up a lot easier? Would you agree your testimony in Mississippi, or wherever, could be interpreted as meaning that Brown & Williamson at one time used rat poison in their Sir Walter Raleigh pipe tobacco? If there is any interpretation like that, would you agree that that could be corrected in that record.

The Witness: I believe it could be technically, correct technically corrected -- could be corrected.

The Court: Would you agree that if there is any interpretation given from your testimony down there that you would withdraw that, that you never wanted

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to say Brown & Williamson used rat poison in their tobacco?

Witness: I think I could technically correct that."

BY MR. SHEFFLER:

Q. Is that correct, sir, did you --

A. I just said that, yes.

Q. So you are correcting the fact that coumarin is a rat poison used in Sir Walter Raleigh. You are correcting that now, are you not, sir?

A. The question was, is coumarin is used or is not?

Q. Was coumarin, as ever used, a rat poison? That is not correct, is it?

A. To say technically that coumarin is a rat poison is not correct, technically correct.

Q. Therefore, sir, if you have ever said that in the past you are now withdrawing it; are you not?

A. With qualification. I would like to explain the difference between

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coumarin and coumadin and why they are related.
Q. And they are two different products; are they not?
A. They are two different chemical compounds but of the same chemical family.
Q. Okay, sir. Now, sir, on national television, CBS 60 Minutes, you said that you had documentation that coumarin was a lung-specific carcinogen; do you recall that?
A. Yes, I do.
Q. And on that segment on 60 Minutes, that was an interview with Mike Wallace; you recall that?
A. I recall that.
Q. On that segment with Mike Wallace, did not Mike Wallace hold up the final NTP report?
A. Yes, he did.
Q. And claim that it was the documentation that said coumarin was a lung-specific human carcinogen; is that not correct?

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MR. ALDOCK: Page and line?
MR. SHEFFLER: I think it's page --
MR. WALLACE: Exhibit 9.
MS. WERTHEIMER: Page 7.
Q. Page 7. And, Dr. Wigand, stating on 60 Minutes, national broadcast, "I wanted it out immediately. And I was told that it would affect sales and I was to mind my own business. And then I constructed a memo to Mr. Sandefur indicating that I could not in conscience continue with coumarin, a product that we now knowingly have documentation that it is lung-specific carcinogen." Do you see that, sir?
A. Yes, I do.
Q. And when you made that statement on 60 Minutes with Mike Wallace, did you want to convey to the American public that coumarin, according to the NTP report, was a human lung carcinogen, or did you want to convey to the public that it was a carcinogen in female mice?

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A. I believe I was communicating that coumarin is a carcinogen and it was a lung-specific carcinogen. I didn't qualify it as human and I didn't qualify it as rat and mice.
Q. And neither did Mr. Wallace?
A. That's right.
Q. What was the implication that you wanted the people in the American public to draw? That coumarin was a carcinogen for humans or did you want them just to think that coumarin may be a carcinogen for female mice?
A. That coumarin was a carcinogen in mice.
Q. Did you want people to understand that coumarin should be removed from pipe tobacco because it was a carcinogen for humans?
A. What I was suggesting was that coumarin needs to be removed because the data suggests that it is a carcinogen. And knowingly using something that is a carcinogen in tobacco is irresponsible.

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Q. Sir --
A. And Brown & Williamson took out coumarin out of every other product but pipe tobacco.
Q. Sir --
A. And knowingly kept it in the pipe tobacco irrespective of its own additives advisory panel.
Q. Sir, can you answer my question? My question was, did you not want to convey the implication to the American public that coumarin was carcinogenic in humans?
A. No.
Q. You didn't want to convey that?
A. I don't think that's what I was conveying.
Q. Were you trying to warn the female mice that might be watching 60 Minutes?
A. No.
Q. Well, then why on 60 Minutes did you state that it was a lung specific carcinogen unless you wanted the viewers

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to make the leap that, of course, it is a lung-specific human carcinogen? Wasn't that the implication of your remarks?
A. I think if you go back to the prior statement by Mr. Wallace, it says that news about coumarin and cancer got worse. The report by Independent Researchers, part of a National Toxic Safety Program, presented evidence that coumarin is a carcinogen that causes various cancers.
There is no discussion here about humans. It causes cancer in laboratory animals.
Q. Sir, you didn't say it causes cancer in laboratory animals. You said it causes cancer. This was broadcast over 60 Minutes. This was a national television show, right?
A. Yes.
Q. You knew when it was being taped it was going to be broadcast to the nation at large?
A. I believe so.

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Q. And yet, you said it was a carcinogen. You didn't say laboratory animals. You said it was a carcinogen, a lung-specific carcinogen?
A. There is a lot of things that are carcinogens, lots.
Q. Sir, let me ask you this, did you tell Mike Wallace that coumarin was a human carcinogen?
A. No, I did not.
Q. Did you tell Mike Wallace that coumarin was never called a human carcinogen by any organization in this country?
A. I believe I may have told Mr. Wallace that coumarin in the 1980's was removed from the GRAS list because it had a high --
Q Liver toxicity.
A. Yes, high liver toxicity.
Q Not cancer.
A But I also --
Q Did you tell Mr. Wallace that human cancer can be caused by coumarin?

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A. No, I did not. I don't think that says it here.
Q. Sir, did you lead Mr. Wallace to believe that coumarin was a human carcinogen?
A. I don't believe I did.
Q. Did you tell him that the only study that ever produced any increase incidence of cancer was in female mice at the highest dose possible? Did you tell him that?
A. I don't know if I discussed with Mr. Wallace the absolute details of the NTP program.
Q. Did you give Mr. Wallace the NTP program?
A. Did I give him a copy? He may have gotten a copy independently.
Q. Sir --
MR. SHEFFLER: Let's mark this as the next exhibit.
- - - - -
Thereupon, Wigand Exhibit No. 39 was marked for purposes of

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identification.
- - - - -
BY MR. SHEFFLER:
Q. What I am handing you, sir, is a copy of an NTP technical report on the toxicology and carcinogenic studies of coumarin, female, or excuse me, rats and mice. Do you see that?
A. Yes, I do.
Q. National Toxicological Program. P.O. Box 12233, Research Triangle Park, North Carolina; do you see?
A. I see that.
Q. Wasn't this the exact report, or a copy of the exact report, that Mr. Wallace held up on 60 Minutes?
A. I believe it is. It may be.
Q. Did you read this report before the 60 Minutes broadcast, sir?
A. I read this report during my tenure at Brown & Williamson.
Q. No, you didn't, sir, because this report wasn't published --
A. Oh, I'm sorry.

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Q. -- until after your tenure at
Brown & Williamson, was it?
A. I'm sorry, I read the draft.
Q. You did not read this report, did
you, sir, at Brown & Williamson?
A. No, I did not.
Q. But did you read it, sir, sometime
after you were fired?
A. I may have read it sometime
after I was fired, yes.
Q. Okay. Good. Where does it say in
this report, sir, that coumarin is a human
carcinogen?
A. I don't know of too many NTP
programs or any studies that test on humans
potential carcinogens. Are you suggesting
what they should do is test coumarin on
humans to see if it's a carcinogen?
Q. You don't know of any study by the
NTP that have found that there are human
carcinogens, probable or suspected human
carcinogens?
A. I would think that this report
strongly suggests if it's carcinogenic in

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animals it may be something that you want to
deliberately put in a product that exposes
the human to. And coumarin enough -- had
already been removed from other products
within the industry long before this.
Q. Sir, look at the explanations of
levels of evidence of carcinogenicity in
the report. I think it's page 10.
A. Um-hum.
Q. Now, sir, doesn't it say in the
explanation of levels of evidence of
carcinogenic activity in the first
paragraph, one, two, three sentences,
positive results demonstrate that a chemical
is carcinogenic for laboratory animals under
the conditions of the study and indicate
that the exposure to the chemical has the
potential for hazard to humans. Other
organizations, such as the International
Agency for Research on Cancer, that's known
as IARC, isn't it?
A. Uh-huh.
Q. Do you know what IARC is?
A. Uh-huh.

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Q. Are you familiar with it?
A. I'm generally familiar with it.
Q. Do you know IARC doesn't list
coumarin as a rat poison? Do you know if
IARC -
A. Doesn't list coumarin as a rat
poison? It probably doesn't.
Q. Do you know it doesn't list
coumarin as a -
A. Did you make it up?
Q. No, sir, I'm asking the questions
here. It also doesn't list coumarin as a
human carcinogen, does it?
A. Does the GRAS list have coumarin
on it now?
Q. Sir, does the --
THE COURT: Answer the question,
don't ask questions.
Q. Does the IARC list coumarin as a
human carcinogen? Yes or no.
A. I don't know the answer to that
now.
Q. Did you even look?
A. No, I didn't.

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Q. Including animal studies -- excuse
me. The International Agency for Research
on Cancer assigned a strength of evidence
for conclusions based on an examination of
all available evidence. All available
evidence. Do you see that, sir?
A. Um-hum.
Q. But you don't know whether IARC,
after looking at all available evidence,
came to the conclusion that coumarin is a
carcinogen for humans, do you?
A. I don't know if it's ever been
tested in humans.
Q. Sir, all available evidence does
not only look to tests of humans, does it?
A. I -- it's generally looking at
animals.
Q. And it's also looking at
epidemiological studies; is it not?
A. It may look at -- yes.
Q. It looks at estimates of exposure;
does it not?
A. Yes, it does.
Q. And isn't it true, sir, the actual

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determination of risk to humans, reading on in the NTP report, from chemicals found to be carcinogenic in laboratory animals requires a wider analysis that extends beyond the purview of these studies?
A. That is what that statement says.
Q. And that's from the NTP report?
A. That is part of the NTP report.
Q. Did you discuss this with Mr. Wallace?
A. I did not discuss with Mr. Wallace all the technical details of this report.
Q. Didn't you discuss with Mr. Wallace the fact that according to this NTP report, which he held up on 60 Minutes and broadcast to the nation, didn't you discuss with him that this report said coumarin has been reported to have anti-tumor activity in humans? Did you tell him that?
A. No, I did not tell him that.
Q. Why not?
A. That's -- where is that in this report?

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Q. You didn't read the report?
A. I said where is it. I have read the report but I haven't read the report recently.
Q. Okay. When you read the report, did you see the section on humans?
A. I believe I did.
Q. Sir, can you answer my question? Did you see the section on humans?
A. I read a lot of things. I can't remember every page I read everything on.
Q. Sir, this was a very important broadcast in your life; was it not?
A. For me and for others.
Q. Was this a very important event, sir?
A. I would think it was an important event, yes.
Q. You wanted to get your time on CBS to make your allegations to the public, right?
A. I think that's what I wanted.
Q. Didn't you at least read the report in its entirety before you got on

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that show?
A. I read the report several years ago, yes, I did.
Q. And you read in the report that at the 1991 meeting of the American Cancer Society, there were several reports on the anti-tumor properties of coumarin. You read that, didn't you, sir?
MR. ALDOCK: Page and line, counsel?
Q. Did you read that, sir?
MR. ALDOCK: If he is going -- isn't he going to tell us where it is?
Q. Do you recall reading that, sir?
A. I may have read it, yes.
Q. Do you recall reading, sir, on page 18, some coumarin derivatives have been reported to have anti-tumor activity against human cancer?
A. Are we talking about coumarin derivatives like coumadin or are we talking about -- what kind of coumarin derivatives are we talking about?
Q. Well, look down here, sir, where

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it says the third, fourth paragraph or the sentence. At the 1991 meeting of the American Cancer Society, there were several reports on the anti-tumor properties of coumarin. Do you see that, sir?
A. Um-hmm.
Q. So, sir, did you discuss that with Mike Wallace?
A. I don't believe so.
Q. Why not?
A. Because that's not the central issue.
Q. The central issue was that it caused cancer in female mice at the highest doses?
A. No. The central issue was that B & W knowingly continued to use an additive that was against its own additives advisory panel.
Q. Sir, you said --
A. And that --
Q. -- that it was a lung-specific carcinogen on 60 Minutes. That's what you said. You wanted people who were watching

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that show to believe that coumarin was a danger for them because it may cause lung cancer in them.
That's what you said, sir, and you knew when you said that that the reports in humans indicated coumarin was an anticarcinogen; isn't that correct?
A. I don't think so. I'm not so sure --
Q. Sir, as a scientist, aren't you --
A. -- I would draw that conclusion.
Are you trying to --
Q. Aren't you trying to be very careful as a scientist -- when you are a scientist speaking about such matters, don't you want to be careful? Don't you want to be complete in your allegations?
A. Yes. I --
Q. Let me ask you --
MS. WERTHEIMER: Are you finished with your answer?
THE WITNESS: No.
Q. Let me ask you, when you told the American public that there was clear

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evidence that coumarin was a lung-specific carcinogen, is it not true that you were referring to an NTP study which found coumarin in its tests of laboratory animals, only in one strain of female mice at the very highest doses?
A. I was referring to the statement in this NT report that says positive results demonstrate that the chemical is carcinogenic for laboratory animals.
Q. Sir --
A. And I don't know --
Q. -- can you answer my question?
Did you read the report, sir?
A. I read the report.
Q. How many strains of laboratory animals were tested?
A. I cannot recall at this time.
Q. There were two strains, were there not, sir? Look at the front page. The very title of the report. Can you recall now that they tested it in rats and they tested it in mice?
A. That is correct.

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Q. And in rats they tested male rats and they tested female rats, right?
A. I believe they did.
Q. And in mice they tested male mice and they tested female mice, right?
A. I believe they did.
Q. And the only thing that they found an increase incidence of cancer was in female mice at the very highest doses; isn't that right?
A. I would have to re-read the report but that seems reasonable.
Q. Okay, sir. It seems reasonable.
Did you tell Mike Wallace that?
A. I told Mike Wallace that it was -- as in the report, it was hazardous to humans as the report so states.
Q. Sir --
A. I refer you to page 10. It's a hazard to humans.
Q. Is it talking about cancer? Is it talking about lung-specific cancer?
A. It doesn't matter. It talks about a chemical that's carcinogenic in animals

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and it's talks as a chemical -- it indicates that exposure to the chemical has a potential for hazards to humans.
Q. Is that what you said to Mike Wallace? You said that coumarin, since it has been proven to be carcinogenic in one strain of female mice at the very highest doses, may have the potential for hazards to humans; is that what you told Mike Wallace?
A. Those exact words, no.
Q. Did you tell Mike Wallace that really to make a determination of the risk of carcinogenesis for humans that you would have to review all the available evidence in the compound?
A. No, I did not tell him that.
Q. Did you tell him that there were institutions, that there were organizations who had reviewed all of the evidence available on the compound and had concluded that coumarin was not a carcinogen?
A. Based on this report they classified it as a carcinogen and hazardous to humans.

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Q. They didn't say it was hazardous to humans, sir. In the report it says has the potential.
A. That's enough for me.
Q. That's enough for you, sir.
A. It has the potential, yes.
Q. Was it enough for you to get on the 60 Minutes program and imply to the national public that it was a carcinogen in lungs if people smoked Sir Walter Raleigh pipe tobacco?
A. That is their -- that is that exposure, yes. There is that exposure.
Q. Sir, isn't it true that even after this NTP study, the NTP annual report in 1994 did not list coumarin as a carcinogen for humans?
A. I haven't seen the 1994 report.
Q. You didn't look to see what the annual report of the NTP said when it put forth its list of carcinogens for humans to see whether or not this was listed?
A. I did not see the 1994 report.
Q. Did you see any reports by the

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NTP?
A. Other than this report, probably not.
Q. Did you even look? You didn't look to see what the NTP said on the basis of this study, and all the other available evidence? You didn't look to see whether the NTP report, the annual report, said coumarin was a carcinogen for humans? You didn't look to see that?
A. I would like to see it if you have it.
Q. Sure.
MR. SHEFFLER: Let's mark this next.

- - - - -

Thereupon, Wigand Exhibit No. 40 was marked for purposes of identification.

- - - - -

BY MR. SHEFFLER:
Q Very long report, sir, what I have copied for you. Is the list of substances that are known to be carcinogenic.

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A. Uh-huh.
Q. If you look at page 5? See page 5 of the report? Substances or groups of substances, occupational exposures associated with the technological process and medical treatments that are known to be carcinogenic. The printed page 5 of the report. I'm sorry. It comes after a list of substances.
A. Okay. I have it.
Q. Do you see that? Now, let's start again, sir. This is the annual report, 1994, the NTP.
MR. SHEFFLER: And for the record, your Honor, what we would like to do is make a full copy of this report as an exhibit as well, but we only have a Xerox copy of part of it at this time. When later, I hope later today we can get the entire report here.
Q. But the list of substances, or groups of substances, occupational exposures associated with a technological process and medical treatments that are known to be

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carcinogenic are listed here; are they not?
A. I think that's what the heading states.
Q. Do you see coumarin listed there?
A. No, but I go down and I look at the reference down below, and it says for purposes of the report, known carcinogens are defined as those substances for which evidence from human studies indicates there is a casual relationship between -- I'm sorry, causal relationship between exposure to the substance and human cancer.
Q. Sir, the NTP said that they were not going to list, in their list of substances, coumarin?
A. Where did they say that word? Did they say that?
Q. Did they list it?
A. I don't know. Did they say they didn't?
Q. Do you see it listed?
A. I don't see it listed. But I --
Q. So they must have made a decision not to?

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A. I don't know what the NTP did in that terms of that decision.
Q. Because you didn't look before you went on Mike Wallace's show, did you? You didn't look to see, before you went on Mike Wallace's show, whether or not the NTP report listed coumarin, on its list of substances or groups of substances, that are known to be carcinogenic?
A. Did I do a thorough literature search? I don't think I did, no.
Q. You didn't do a thorough literature search before you went on Mike Wallace to implicate coumarin as used in Sir Walter Raleigh as a lung carcinogen for humans?
A. I think if you look at the National Toxicology Program study it clearly says there is clear evidence of carcinogenic activity. It is demonstrated by studies.
Q. Okay. So you didn't look at all the evidence. Let me ask you this, did you look at all at the time evidence in B & W studies? Did you look at all the evidence

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when you were at B & W that B & W had about coumarin?
A. Did I look at all the studies of B & W? It was clear from --
Q. Sir, can you answer my question? Did you look at the studies in B & W's possession with respect to coumarin when you were there?
A. I looked at most of the studies, yes.
Q. Most of them?
A. That I could reasonably get to, yes.
Q. That you could reasonably get to?
A. I looked at most of the studies.
Q. Did you go to the library and ask the librarian to give you the studies on coumarin?
A. I believe I did, or I asked somebody to go get them for me.
Q. You did?
A. I believe I did. I believe I looked into coumarin pretty arduously during my tenure at Brown & Williamson.

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Q. So then you understand, sir, that estimates of exposure are very important when discussing coumarin?
A. That's correct.
Q. Okay. And the NTP recognized estimates of exposures as being very important, don't you?
A. Yes, I do.
Q. And you recognize, sir, that the metabolism of coumarin is very important, sir, don't you? The way coumarin is metabolized; that's a very important factor, isn't it, sir?
A. I understand the way it's metabolized when it's ingested, yes, I do.
Q. Okay, sir. The NTP study was done on a special strain of rats and mice, I believe you said.
A. Yes.
Q. And is it not true, sir, and please refer to the report if you need to do so, I think it's on page 65.
A. Which report are we at?
Q. The NTP report that was marked as

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exhibit --
MS. WERTHEIMER: 39.
Q. 39. Now, female mice, sir, in this two-year gavage study, produced cancers at an increased incidence that was significant at only the highest dose; isn't that true?
A. That's what the data suggests, yes.
Q. Okay.
A. Which corroborates the conclusion made by the NTP.
Q. Sir, the highest dose was what? The table shows it, doesn't it?
A. A hundred milligrams per kilogram.
Q. No, it wasn't, sir. Would you turn to page 65, sir?
A. I thought you said 39.
Q. 65. I'm sorry, it's Exhibit 39. Counsel -- 65. Now, sir, would you please look at the table, on incidences of lung lesions of mice in a two-year gavage study of coumarin. Do you see that?

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Yes, I do.
Q. Have you read this before?
A. I have seen this before, yes, I have read it.
Q. Okay. You did read it?
A. Yes, I did.
Q. Okay. Did you tell Mike Wallace that at 50 milligrams per kilogram there were no tumors produced in the female mice?
A. Did I tell him that?
Q. Did you tell Mike Wallace that at a hundred milligrams per kilogram there were no tumors produced in female mice?
A. I didn't explain the technical details to Mike Wallace nor did I feel that he would understand them.
Q. Okay. Mike Wallace would understand this though, he would understand that at only the very highest doses of 200 milligrams per kilogram there were tumors. But would Mike Wallace understand how much coumarin that represents in terms of pipe tobacco?
A. Did I ever take him through the

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calculations? No, I did not.
Q. Did you ever go through the calculations, sir?
A. I not only went through the calculations, but I believe Mr. Appleton went through the calculations.
Q. Did you go through the calculations, sir, to find out how much pipe tobacco would have to be smoked to equal 200 milligrams per kilogram in a 70-kilogram man?
A. Yeah, I believe there is a general rule of thumb that's used for in-vitro and in-vivo studies.
Q. No, sir, that's not my question.
A. Did I ever do the calculations?
Q. My question, sir, is do you know how many bowls of Sir Walter Raleigh aromatic pipe tobacco a smoker would have to smoke in a day, assuming average weight of 154 pounds --
A. Uh-huh.
Q. -- to reach a level of 200 milligrams per kilogram? Did you ever do

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that?
A. Did I ever do the calculations, yes.
Q. Did you tell Mike Wallace that a smoker would have to smoke the equivalent of 3,294 bowls of Sir Walter Raleigh pipe tobacco in a day to get the equivalent dose of 200 milligrams per kilogram?
A. I'm sorry, it just doesn't work that way.
Q. Sir, did you ever tell him that?
A. I'm sorry, no, I did not. But that doesn't -- that's not the way those calculations will work.
Q. Let's go through the calculations. First of all, Sir Walter Raleigh had coumarin at the level of about 1700 parts per million; is that right?
A. 1720.
Q. Let's use 1700 parts per million. My math isn't that good, so bear with me here. 1700 parts per million.
MR. ALDOCK: Your Honor, we produced --

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THE COURT: Okay.
MR. ALDOCK: Your Honor, we produced in production here to Brown & Williamson calculations that dealt with this matter.
MR. SHEFFLER: No, they didn't, your Honor. The calculations dealt with exposure.
THE COURT: I don't know what y'all did. Let's go through it now. We have the witness here now, and if he disagrees with the calculations, let's run through it.
Q. All right, sir. 1700 parts per million. Now, that's like 1700 micrograms per gram, right?
A. Um-hum.
Q. So 1700 micrograms per gram is the same as 1.7 milligrams per gram; is that right?
A. That's correct.
Q. Now, in a bowl of tobacco, there is about two and a half grams, in a bowl, in a pipe bowl there is about two and a half

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grams of tobacco; right?
A. It could vary but it could be higher also.
Q. It could be lower.
A. It could be lower.
Q. But on average, two and a half is a good approximation; isn't that true?
A. That's correct.
Q. So if you multiply two and a half grams times 1.7 milligrams, that gives you 4.25 milligrams in a bowl of Sir Walter Raleigh pipe tobacco?
A. Yes.
Q. So we have, for each bowl of Sir Walter Raleigh aromatic pipe tobacco we have 4.25 milligrams of --
A. No, 425 milligrams.
Q. 4.25. 1.7 times 2.5 is 4.25?
A. I'm sorry, go ahead.
Q. We have 4.25 milligrams of coumarin in a bowl of Sir Walter Raleigh aromatic?
A. Yes.
Q. Now, the dose that was given to

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the mice was 200 milligrams per kilogram, right?
A. Yes.
Q. If the average person weighs, let's take a man that weighs 154 pounds, that's not my average, but let's see if we could use that.
MR. ALDOCK: Not the average in this room, I don't think.
Q. Because that translates to 70 kilograms; doesn't it, sir?
A. Yes.
Q. So for a 70-kilogram man?
A. I believe these are exactly my calculations you are using.
Q. 70-kilogram man, 200 milligrams per kilogram, that would be 14,000 milligrams per day, right? 14,000 milligrams per day, divided by 4.25 milligrams per bowl, equals 3,294 bowls of Sir Walter Raleigh pipe tobacco a day to get to the dose, the only dose that produced these lung cancers in mice; is that right?
A. If you assume there is a

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one-to-one correspondence, and that's not the way it's done.
Q. Sir, answer my question. To get to the dose --
A. Assuming the way you are doing it, yes, that's the way it works.
Q. So if --
MR. ALDOCK: He was in the middle of answer. He said assuming --
A. Assuming that this is the way you want to do it, a one-to-one correspondence.
Q. Sir --
A. However, that is not the guidelines that are used.
Q. Let me ask you this, sir, okay? Is this not a true statement: Lung cancers -- excuse me. There was a 14 percent increase in cancer in female mice at 200 milligrams a day of coumarin; is that correct? And they stuck this coumarin in their gut with a needle and injected the whole 200 milligrams in there at once; didn't they do that?
A. I don't think that's what they

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did.
Q. What kind of exposure study, was it?
A. I don't think gavage looks like sticking a needle in their gut. Is that what was done?
Q. Sir, was it a gavage study?
A. Yes, it was.
Q. Okay. So it was a 200-milligram bolus of coumarin at once; right?
A. In the digestive system.
Q. Okay, sir. Now, what I would like to do, sir, is ask you, is it not true that that dose, to get that dose, to get 200 milligrams per kilogram, a human being would have to smoke 3,294 bowls of tobacco to get that dose?
A. However -- if you want to do that calculation --
Q. Is the answer yes?
A. If you want to do that calculation --
Q. Is the answer yes?
MR. ALDOCK: The answer is, "yes

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but." Will you let him say the whole thing?
THE COURT: He has to give the answer first.
THE WITNESS: Yes, based on the manner in which you're calculating it. I don't believe your manner in which you're calculating is the correct way to access exposure.
Q. I'm not accessing exposure, I'm accessing amount. Is there not 200 milligrams per kilogram for a 70-kilogram man, doesn't that equate to 3,294 bowls of Sir Walter Raleigh?
A. Yes, your math is correct.
Q. Okay, sir. Did you tell Mike Wallace that to get the equivalent dose, because dose was important according to the NTP study, a smoker would have to smoke 3000 bowls of Sir Walter Raleigh a day; did you tell him that?
A. No, because that's not the way it works.
Q. Did you tell him that?
A. No.

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Q. Did you take into account the route of administration of coumarin in this study and compare it to other routes of exposure? Did you do that?
A. Have I done the calculations on a transfer rate?
Q. No, sir, that's not my question. My question was, did you take into account and discuss with Mike Wallace the route of exposure used in this study and compare it to other routes of exposure used in other studies? Did you do that?
A. I may have.
Q. Did you tell him that when the route of exposure was different than gavage, when they used feeding studies, they didn't ever produce lung carcinomas in any laboratory animals? Did you tell him that?
A. That's not what the NTP program says.
Q. Did the NTP program say anywhere in it that there was ever a study before it that produced any types of lung cancers in animals?

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A. Was there any type of study that was done before?
Q. Sir, the NTP report reviewed the studies that were done before it; did it not?
A. Yes, it did.
Q. And did it not conclude that this study, gavage study, was the only study that found increased incidence of lung carcinogen, of lung cancer in female mice, at a 14 percent rate?
A. I believe that's part of the conclusion of this report.
Q. Did you tell that to Mike Wallace?
A. I believe I may have.
Q. Okay. So you told Mike Wallace that all the other studies that have looked a coumarin, feeding studies, never found lung cancers in laboratory animals? You told him that?
A. I may or may not have; I'm not sure.
Q. Did you tell Mike Wallace that you knew, at the time of the interview, that the

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gavage method of rodent testing has been sharply criticized?
A. I don't know if I went through with Mike Wallace a complete technical discussion on this.
Q. Well, didn't you want to tell him about this report before he got on the 60 Minutes and said to the nation this is a lung-specific carcinogen? Didn't you want to tell him about the criticisms of the way the administration of this material was given to these mice? Do you think Mike Wallace knew about it?
A. About the differences?
Q. In the administration?
A. I don't think he could understand the differences in the administration.
Q. So why didn't you explain it to him?
A. I may have explained it to him.
Q. So you did tell him that the gavage method was -- has been criticized?
A. I may have.
Q. And you did tell him --

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A. I may have. I cannot recall.
Q. You did tell him, sir, that the gavage method has been criticized for more than one reason, didn't you? Or did you?
A. I cannot recall. I just answered it.
Q. Hasn't the gavage method been criticized for more than one reason?
A. There have been a lot of methods that have been criticized. The gavage method probably has also been criticized.
Q. Isn't it true today, sir, that the NTP is considering abandoning the use of the gavage method as a testing method for laboratory animals?
A. That may be true. I'm not aware of it as of today.
Q. Sir, as of the time you spoke to Mike Wallace, you were aware that corn oil had been implicated as a tumor promoter in and of itself; were you not?
A. No, I was not aware of that.
Q. Dr. Scott Appleton didn't tell you when you met with him while you were at

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B & W that corn oil has been implicated as a tumor promoter in and of itself?
A. I don't think he has ever told me that.
Q You were aware, sir, were you not, at the time of this interview with Mike Wallace that dietary fat, which corn oil contributes to, has been implicated in laboratory animals as a lung carcinogen; were you not?
A Was I told that? I can't recall that.
Q. Were you aware, sir, that one of the criticisms of the gavage study and the gavage method is that it administers a huge bolus of dose at one sitting?
A. I understand that.
Q. And that that huge bolus may very well overwhelm the pharmacokinetics and the clearance mechanisms of the animal and produce lesions that otherwise would not be produced if ingested over the day?
A. Every study has its limitations as this study.

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Q. And the feeding studies, sir, which did not use a bolus, and which did not use corn oil, did not produce these types of results, did it?
A. But this study -- this study clearly demonstrated the first time that coumarin was implicated as a lung-specific carcinogen.
Q. In female mice at highest doses at a 14 percent rate?
A. And as a hazard to humans.
Q. And may be a potential hazard which you did not tell Mike Wallace?
A. May be a potential hazard was hazardous enough for my concern.
Q. And you didn't tell Mike Wallace that according to the NTP's own protocol, which you purportedly read, the best they would say is it may be a potential hazard and that all evidence should be considered before you labeled it a human carcinogen. You didn't tell him that, did you?
A. I may have told him that. I can't

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recall everything I told to Mike Wallace at this time.
Q. Well, did you ever talk to Mike Wallace about what he said about coumarin on TV?
A. After talking to Mr. Wallace?
Q. Yes.
A. I don't believe I did.
Q. Well, did you know what he was going to say before it was broadcast?
A. Did I review the tape before broadcasting?
Q. Well, you knew what was said during the tape. Did you ever tell Mr. Wallace that maybe he was going a little overboard here?
A. I don't recall telling him that.
Q. Sir, did you take into account possible differences in the way species metabolize coumarin when you came to your conclusion that you were willing to go on CBS 60 Minutes and have Mike Wallace and you collaboratively saying it was a specific lung carcinogen and imply it was a danger

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for humans? Did you tell Mr. Wallace about the differences in species metabolism?
A. There are differences in species metabolism. I don't know if I discussed that specifically with Mr. Wallace.
Q. You knew that there were differences in the way species metabolized coumarin?
A. I know there are differences between the way animals metabolize it, by ingestion; I know there are differences between the way humans ingest it. It goes through different metabolic fates.
Q. Okay. And you were aware, sir, of the literature and research at B & W about those differences. You were aware of that when you were there, weren't you?
A. B & W never did any studies when it was looked at as an aerosol or transmitted in smoke.
Q Sir, you were aware of the studies at B & W that looked at the fact that coumarin was metabolized differently in primates and rodents?

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A. Only when administered through the digestive system.
Q. Sir --
A. Not when taken through the lungs.
Q. Sir, isn't it true that coumarin, in the gavage study, was not taken through the lungs?
A. That is correct.
Q. Okay, sir. Did you tell Mike Wallace that you had research, that you knew of research, that suggested that the metabolism differences between rodents and primates would render suspicion with respect to any extrapolation from rodent studies to the problem?
A. Research from where?
Q. Research from what was cited in the NTP report. You did read that, didn't you?
A. I already told you I have read it once before.
Q I mean, didn't you read that one of the --
A. But I also --

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Q. -- subcommittee comments --
A. If you want me to comment --
Q. -- in the Summary of Technical Reviews?
A. -- I would be more than willing --
THE COURT: One at a time, one at a time.
THE WITNESS: I would be more than willing to re-read this document and go through it in a technical discussion with you. If you want to pick out point by point, I will be able to concede to you point by point, isolated without the context of the total document. And I will review the document at a later time. However --
Q. Page 12, sir. This is a document that you read before going on 60 Minutes, purportedly. This is document that Mike Wallace held up on 60 Minutes. And it's a document that we have marked as an exhibit here today.
In the Summary of Technical Reports Review subcommittee comments; do you see that, sir?

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A. Yes.
Q. You read that?
A. You'll have to direct me to a paragraph, please.
Q. Well, let me direct to you Dr. Bailey, one of the principal reviewers' comments. Dr. Bailey, a principal reviewer, agreed with the proposed conclusions. Some evidence of carcinogenic activity of coumarin in male rats, et cetera, et cetera, the conclusions right above.
He said it would be useful to have pharmacokinetic or metabolism data on the fate of coumarin in the Fisher rat and the B6C3F1 mouse. That was the female mouse that had a 14 percent increase at the very highest dose; was it not?
A. Yes, I believe so.
Q. Now, why did Dr. Bailey want to see evidence and pharmacokinetic and metabolism data on the fate of coumarin?
MR. ALDOCK: Objection.
THE COURT: I don't see how he can answer that.

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Q. All right. Let's read and see if maybe there is an answer here. Dr. Bailey said he would also like to see included in the report a discussion on the relevancy of these carcinogenicity studies to humans since there are data indicating that humans metabolize coumarin differently than do rodents. Do you see that, sir?
A. Yes, I do.
Q. And wasn't there a lengthy discussion about the differences between the metabolism of coumarin by rodents and by primates?
MR. ALDOCK: Lengthy discussion where?
Q. In the NTP report at pages 14 to 16.
A. Is that the discussion they had or is this the absorption distribution metabolism and secretion rate?
Q. Well, isn't that what was discussed on these pages, 14 to 16, the absorption, distribution, metabolism and excretion and comparison of humans to

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primates and rodents?
A. I believe it may reflect – I wasn't a participant in that discussion.
Q. Well, you read it, didn't you?
A. I have read it, yes, I read it.
Q. Okay, sir. It does talk about the differences between metabolism, doesn't it, between rodents and primates?
A. Yes, it does. However, I would like to qualify. Based on my understanding and interpretation, any company who wanted to exercise a reasonable duty of care would have removed this immediately from a product.
They removed other compounds of lesser concern. Coumarin now is indicated as a lung-specific carcinogen. It had been removed from every other B & W product, and had been removed by the industry long before.
MR. SHEFFLER: Your Honor, I move to strike that self-serving statement by the witness.
MR. ALDOCK: It qualifies his

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answer.
MR. SHEFFLER: I don't think -- my question was whether or not the study addressed the metabolytic rates and the differences between rodents and primates. And he is talking about B & W, and he is giving his self-serving declaration, once again, which he wants to get up on a soapbox to do.
We are here today, your Honor, because this man has been getting up on soapboxes for the last four years and making these outlandish statements and I don't think this deposition should be another soapbox for him.
MR. ALDOCK: I object and ask that question be struck.
MR. SHEFFLER: Excuse me. I'm supposed to be entitled to ask him questions and get responsive answers.
THE COURT: You may. And as long as he gives a yes or no first, as I have explained to him, then he may qualify his answer and that's what he did.

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MR. SHEFFLER: Okay.
THE COURT: You may further question him about his opinion that he just stated.
MR. SHEFFLER: And I will, sir.
THE COURT: Is this an appropriate time to break?
MR. SHEFFLER: Sure is.
(Brief recess.)
THE VIDEOGRAPHER: Back on the record. The time is approximately 10:35.
BY MR. SHEFFLER:
Q. Now, sir, did you look at the human toxicity data in the NTP report?
A. I'm sure I looked at the human toxicity data in the NTP report.
Q. And what did it conclude?
A. Without reading it again, I probably can't --
Q. Look at page 17, sir. Information on the toxicity of coumarin in humans is limited to phase one and two toxicity studies in cancer patients given coumarin in combination with somatomedin. These studies

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found no major organ toxicity attributable to the use of coumarin given at doses of one hundred to 400 milligrams per day.
A. Um-hum.
Q. For several weeks to one month; do you see that?
A. I read that statement, yes, sir.
Q. So there was some data with respect to humans available to the NTP?
A. Yeah, that's 1990 data, I believe.
Q. Okay. Sir, we were talking about the differences in metabolism of coumarin in rodents and man before the break.
At the time that you spoke with Mike Wallace, did you know that there were major differences between metabolism of coumarin in rodents and primates?
A. Was I aware of it when I spoke to Mike Wallace?
Q. Yes.
A. I believe I was clearly aware that there was differences in the metabolism between animals and humans. I also realized that many, many, many times the government

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has stated something is carcinogenic or tumorigenic and the responsible manufacturer removes the product or the compound rather than continuing to expose the public to unnecessary risk until the final data is in.
MR. SHEFFLER: I move to strike the last nonresponsive part of the answer.
MR. ALDOCK: Object.
THE COURT: It may stand.
Q. Mr. Wigand, aren't you aware that the FDA has approved for use in foods many, many compounds that have shown some evidence of carcinogenicity in some laboratory species?
A. The FDA, yeah. For what specific purpose has the FDA approved these additives or chemicals?
Q. To eat, to eat.
A. Are you suggesting to me that eating and smoking are the same?
Q. There is no government agency that regulates tobacco other than the Human Health and Services Department, right?
A. So far.

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Q. Okay. The FDA has found that the fact that a single study produces cancer in a single strain of mice is not the equivalent of saying it's a human carcinogen; isn't that true?
A. Has the FDA said that?
Q. Yes.
A. They may have said it, but in 1984, the FDA, based on studies on use of coumarin in humans, removed it because of the suggestion of hepatotoxicity. Excuse me. May I finish my statement?
Q. Sure. Of course.
A. Coumarin was removed by the FDA in 1984 from the GRAS and FEMA list.
Q. Was it not also removed because of liver -- hepatotoxicity?
A. I'm sure it was. They recognized --
Q. Turn to page 74, sir. Now, actually the FDA removed coumarin because of liver hepatotoxicity or toxicity in liver back in 1954 on the basis of some early studies at that time; is that right? Is

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that right sir?
A. My recollection is the FDA removed coumarin on the GRAS list, which is one of the criteria by which B & W used in 1984. If they removed it earlier, then I am in error but my recollection is it was not on the GRAS list or the FEMA list as B & W continued to use it as an additive.
Q. Okay, sir.
A. In fact -- may I please finish? In fact, the use of coumarin by B & W was directly against their own additives advisory group.
MR. SHEFFLER: Your Honor, I move to strike that. That's a self-serving statement is -- we will get to that, sir, but at this time my question was simply, did the FDA remove coumarin in '54, not '84.
THE COURT: I think he has answered that.
Q. Okay, sir.
THE COURT: He may be in error about the date if I understood correctly.
Q. It was based on the evidence

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available to them at that time, 1954, right?
A. It was clear -- yes, it was clear. May I finish now, again?
It was clear that the FDA believed at that time that they did not want to expose the public to additional health risk.

Q. Okay, sir.
A. Associated with whatever study they had.
THE COURT: One at a time.
A. Whether it would have been in animals or humans. They elected to remove it from the GRAS list.
Q. Sir, would you look at page 74?
THE COURT: Time out a minute, please. The court reporter is having a devil of a time with both of you talking and talking fast. Slow down, please, and just wait until the other finishes.
Q. Now on the basis of further studies, in the interim period, coumarin, which is still permitted to be used by the FDA in cosmetics, was tested for liver --

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hepatotoxicity, wasn't it?
A. Hepatotoxicity, yes.
Q. In other words it was tested for liver toxicity; right?
A. You are going to have to direct me to the paragraph.
Q. Look at the bottom of page 74, the last paragraph. Do you see where it says coumarin likely may not produce hepatotoxicity in humans?
A. Um-hum.
Q. Similar to that in rats, because of the demonstrated differences in metabolism between these species. And then it goes on to explain what those differences are.
In contrast to rats, the metabolism of coumarin in humans results principally in the hydroxylation at the number seven position with the formation of seven hydroxy, coumarin, and et cetera?
A. It's seven hydroxy, coumarin, and glyceride?
Q. In other words, there were

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differences they found after 1954 in the metabolism of humans versus rats, wasn't there, sir?
A. Yes. However, I believe the FDA has never reinstated coumarin for use other than as a fragrance? Have they continued to use coumarin as a flavor additive.
Q. Is that why you went on 60 Minutes and said it was a lung specific carcinogen?
A. I believe Mike Wallace said it was a carcinogen. My concern was --
Q. Did you correct him?
A. Can I finish my statement.
Q. Go ahead. Did you correct him when he said that?
A. No, I did not.
Q. Okay, sir. Did you tell him that the information on toxicity of coumarin in humans has found no major organ toxicity attributable to the use of coumarin given in doses of one hundred to 400 milligrams per day for several weeks or months?
A. I did not do that -- yeah, I may have done that, but I did not do it on the

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program.
However, what I did tell to Mike Wallace and the American public, I believe, is Brown & Williamson continued to use a compound that I felt and many in the scientific community felt put the American public at undue risk.
And in such cases, the better part of diligence is duty of care to the American public would have been removing the product until further studies. As it was, it is contentious. It has associated with -- in animals, it's possibly carcinogenic or carcinogenic in animals and it's potentially hazardous to humans. That's enough for me.

Q. Sir, sorry, go ahead finish your answer.
A. Go ahead.
Q. Sir, what scientific organization are you referring to that has recommended the banning of coumarin because it's a carcinogen?
MR. ALDOCK: That's not what he

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said and --
MR. SHEFFLER: I'm sorry. Maybe I misinterpreted.
Q. Sir, is there a scientific organization who has stated that coumarin should be banned because it's a human carcinogen?
A. I don't know of any organization that said it should be banned as a human carcinogen. But I think this report suggests it's a carcinogen. There are many, many studies that are done with animals which directly relate to removing chemicals or compounds from products that humans are exposed to. Coumarin, in this case, represented a hazard to humans. This is what the report says. It is also a carcinogen for animals. That was enough for me.
Q. When you made this statement, sir, you were aware that there have been studies of primates on coumarin; were you not?
A. I'm aware of many studies. I can't recall all the studies.

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Q. When you made this comment to Mike Wallace about coumarin, you were aware that there were studies of coumarin on primates?
A. There were some studies on primates, yes.
Q. You were aware that the studies on primates involved baboons?
A. I believe that's what the animal was, yes.
Q. And you were aware that baboons metabolized coumarin like humans and, therefore, are a much better species to test the effects of coumarin than rodents, rats and mice, who metabolize coumarin differently; were you not?
A. I think what you need is to help me understand which way you are talking. Are you talking ingestion, or are you talking about baboons smoking it?
Q. Sir, I'm talking about the administration of coumarin. The study the NTP did was an administration of coumarin through gavage; correct?
A. Through the intestinal tract; that is correct.

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Q. And the baboon studies that you are familiar with administrated coumarin through feeding through the intestinal tract; is that correct?
A. That's correct.
Q. And you are aware of the differences between the two; is that correct?
A. I think I'm generally aware of the differences, yes.
Q. In fact, the study in the baboons found no cancer; isn't that right?
A. I would have to refresh my memory, but that may be correct.
Q. Since it was a primate study, which, therefore, had a much better relevance to the metabolism of coumarin than did a rodent study, would that not be something that you should have talked to Mike Wallace about?
A. Sure, that's something I should have talked to Mike Wallace about and I may have. I cannot recall every conversation I

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had with Mike Wallace. What I do recall and what I would like to reiterate for you is that coumarin was continued to be used knowingly in a product which was against the additives policy that had been taken out of every other product in B & W and the industry had taken out of the because of the concerns and health and hazard risk to humans.
And B & W continued to use it and probably --I think -- I believe last week Mr. Wells said thank you to Wigand; it was taken out.
MR. SHEFFLER: Your Honor --
THE COURT: That was too far on that one. Strike it.
Q. Did you and Wallace discuss whether in the interest of accuracy and fairness to the American public you should have told them that research had found that coumarin was not carcinogenic in primates given the differences between the metabolisms of coumarin between rodents and primates? Don't you think you should

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discuss that?
A. I think Mr. Wallace's statement was fairly accurate, that coumarin is a carcinogen that causes various cancers. That's a fairly accurate statement.
Q. Did you discuss with Mike Wallace the fact that the primate studies found no cancer? Did you think that that was important to tell the American public because of the differences in the metabolism rate?
A. I would be more than happy to tell the American public and give them a technical dialogue of this, which they probably wouldn't understand, but what they clearly understand, or would understand, is the use of a product that may put them at additional hazard and risk.
Q. Don't you think it would be fair, sir, to tell the American public that, yes, there was a study done one time with huge doses that found some incidence of increased cancer at about 14 percent in one strain of female mice, but that there have been many

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studies that never found the same thing and that the studies of primates who metabolized the stuff like humans found no cancer? Don't you think you should have told them that?
A. Told the American public or Mike Wallace?
Q. Both.
A. I would be more than willing to take the American public through the use of coumarin in tobacco products.
Q. Would you do that, sir, and tell them as well about the federal registry when, and if you did so, the federal registry's regulations that they have proposed?
A. I think what we ought to do is -- why don't we jointly tell the American public --
THE COURT: Wait, wait. You're both speaking at the same time.
Sir, if you were to tell anyone about coumarin and its effects, would you tell them, as well, about how the EPA has

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decided to make risk assessments today?
A. We are going into a totally different subject. Are we talking about EPA or are we talking about the use of coumarin as an additive in tobacco?
Q. Aren't we talking about, sir, the risks of coumarin to humans? Or are you talking about the risk of coumarin to the female mice?
A. Well, what I am talking about is unnecessarily exposing the human, humans and the American public, to an additive that was contentious and B & W continued to use an additive that they knowingly had evidence that suggested it was hazardous and why not take it out in the interest of duty of care? Why not take it out for the interest of public health and safety?
Q. Sir, my question is, would you not tell the American public that in making risk assessments of whether a chemical is hazardous to humans, one of the things that must be examined is the metabolic pathways and how they relate across species?

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A. I assume -- yes, I think that could be done at a technical symposium and if the American public would like to attend that, I would be more than willing as well as other scientists would be willing to explain both sides of the story and allow them to make their conclusions.
However, if I give the American public a message, the message is that there are studies that show it's a health hazard to humans and is a carcinogen to animals and that in the past has served enough for most reasonable companies to take it out of their products.
Q. The health hazards to human studies before 1954 have been discounted because they say the studies were on rats and rats metabolize it differently.
A. No, now I want to take you to 1993, which says positive results demonstrate the chemical is carcinogenic to laboratory animals.
Q. Right, in laboratory animals.
MS. WERTHEIMER: Were you

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finished?
THE WITNESS: No, I wasn't
finished --
MR. ALDOCK: You interrupted.
Would you finish your answer?
THE COURT: Go ahead.
A. And what it also says, the conditions -- that exposure to the chemical has a potential for hazard to humans. That's enough for me.
Q. Okay, sir, that's exactly --
A. That's enough for my duty of care.
Q. I understand that's enough for you to get on CBS 60 Minutes and say it's a lung specific carcinogen for humans. I understand that. We are now talking about the differences --
A. Excuse me. I did not say it's a lung specific carcinogen to humans. Is that said in there?
Q. I'm sorry, sir, I'll withdraw the question.
It was enough for you to get on and imply, okay. You implied it, didn't

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you?
A. I may have implied it.
Q. Okay, sir. But you didn't tell Mike Wallace that if comparative metabolism studies were to show no similarity between the tested species and humans, with the metabolite in its active form, there would be no support for the inference of cancer in humans; would you -- did you?
A. I do not agree with that statement.
Q. Okay. You don't agree with that statement, sir?
A. I don't agree with that statement.
Q. Do you know whether or not the EPA agrees with that statement?
A. I don't know what the EPA agrees to.
Q. Did you ever look to see what's EPA agreed to?
A. I'm dealing with the 1996, 60 Minutes and the 1993, NTP report. That's what we are talking about here.
Q. Sir, let's go on to the

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differences in metabolism rates.
A. I mean, that doesn't shed any light on issues.
Q. It doesn't shed any light on issues? If a compound is used in an animal that metabolizes it so that it creates a compound that's carcinogenic, okay? Where you knew that the compound used in man metabolized it in a completely different way so that it was non-carcinogenic, that would make no difference to you?
A. It would have to be explained in the context in which the difference is being contrasted.
Q. If a metabolite in rats is carcinogenic, okay? But it is only carcinogenic because of the specific way rats metabolize stuff, and it doesn't get metabolized like that in primates, wouldn't that make a difference to you in engaging whether the substance was hazardous for humans?
A. I think I would have to look at it at all.

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Q. Sure they do. You have to look at it all and that's part of it, isn't it?
A. I think that's part of it. I think the American public knows and understands that many, many times governmental agencies, based on what their best interpretation is at the time, recommend products to be removed for public health and safety.
Q. Sir, we are talking about -- right now we are talking about cancer, aren't we?
A. We are talking about public health and safety.
Q. Okay. Fine. IARC, International Agency for Research on Cancer, is one of those agencies, isn't it, that look at chemicals and try to assess the carcinogenicity risk for humans, isn't it?
A. Yes. And I think that I said before.
Q. When IARC looks at the hazards, they look at all the evidence, including the way it's metabolized, including the routes of administration, including the amounts of

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dose, including all the studies done, including whatever human evidence there is; doesn't it?
A. It may well do that.
Q. IARC looked at coumarin, didn't it?
A. It may have, I believe it has. I have not reviewed that lately, but I have not --
Q. Go ahead.
A. No.
Q. You haven't reviewed it lately. Did you ever review it?
A. Which IARC report? I reviewed many documents in my time. And I can't recall every document I reviewed nor can I give you the citation.
Q. Did you ever look up coumarin in the IARC?
A. I have looked up coumarin a number of times.
Q. In IARC?
A. I may have. I can't recall. I have looked up coumarin a lot.

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Q. Did you ever see coumarin listed as a human carcinogen in IARC?
A. We have been through this territory.
Q. Okay, sir.
A. No, no, no, now let's get back to --
MS. WERTHEIMER: Answer his question.
Q. According to what you told CBS, after the national tox safety program came out, you wrote a memo to Mr. Sandefur. That's what you told CBS; is that right?
A. Um-hum.
Q. And you told CBS that you could not in conscience continue coumarin with a product that we now knowingly have documentation that is a lung-specific carcinogen.
A. Um-hum.
Q. That's what you told Wallace you said to Mr. Sandefur, right?
A. Yes, I did.
Q. After June of 1992; correct?

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A. I believe so.
Q. Do you have a copy of that memo?
A. No, I don't.
Q. You took a bunch of copies of documents with you?
A. I didn't take any documents when I left Brown & Williamson.
Q. You took no documents?
A. I took no documents when I left Brown & Williamson.
Q. When did you -- when do you claim to have written this memo, sir?
A. Sometime in late 1992. I'm sorry. In late 1993.
Q. Okay, sir. When were you fired from Brown & Williamson?
A. Excuse me, I made an error here. Late 1992.
Q. Which was it? 1993 or '92?
A. I just corrected myself.
Q. Okay. It was in '92?
A. Sometime in late 1992.
Q. Okay. When were you fired from Brown & Williamson?

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A. March of 1993.
Q. Okay. So it was in late 1992 or -- it was -- can you give us any better --
A. Late 1992.
Q. And who was your immediate supervisor at that time?
A. Mr. Kohnhurst.
Q. Did you give him a copy of this memo?
A. I believe I copied Mr. Kohnhurst on the memo.
Q. He was your immediate supervisor, sir?
A. Yes, he was.
Q. So of course, you went and talked to Mr. Kohnhurst about this problem with coumarin that you addressed?
A. We had a number of confrontations on the issue of coumarin.
Q. With Mr. Kohnhurst?
A. With Mr. Kohnhurst and Mr. Sandefur present relative to the issue why coumarin needs to stay in the product when it's taken out of every other product in

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B & W, it is recommended by B.A.T. industries, the parent company, that it's against additives policy. It was against B & W's additives policy and new information comes out that suggests strongly that it is a risk to public health and safety, it's a hazardous chemical to humans. It's a carcinogen in animals.

Q. Sir, simply repeating that over, and over, and over again without any more basis than you have given so far, does not do anything to establish it as a fact. You understand that?

MR. ALDOCK: I object to that question.

Q. You can say something is untrue --

THE COURT: It's getting a little argumentative.

Q. Let me ask you this, sir. Did you talk to Mr. Kohnhurst before you sent the memo to Thomas Sandefur about this NTP report?

A. I talked to a number of people.

Q. That's not my question, sir.

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THE COURT: Answer the question.

Q. My question was, did you talk to Mr. Kohnhurst before sending this memo to Tommy Sandefur that you supposedly may have copied Mr. Kohnhurst on?

A. I may or may not have, I cannot recall, but I believe I may have talked to Earl Kohnhurst on this.

Q. Okay, sir. Did you talk to anyone else that you can identify for us now about this NTP report and your conclusions supposedly drawn from it?

A. I talked to Scott Appleton on it.

Q. Okay, sir. Did you send him the memo?

A. No, I did not.

Q. Why not?

A. Because it was a memo between me and managements; it was an issue that I felt, as a senior technical officer of the company, that I felt I had taken a position. I felt --

Q I'm sorry, go ahead, finish.

A. I felt there was a lot -- B & W had taken it out of all other products. It knowingly had not reported it to HHS because it didn't have to. It was in -- they only had to report what was in smoking products.

Q. It knowingly didn't report it to HHS because what it reported to HHS were the additives used in cigarettes; isn't that true?

A. That is true.

Q. It wasn't supposed to report it to HHS; isn't that true?

A. Well, pipe tobacco I think is a smoking product.

Q. Sir, what is the HHS list? Is it not additives in cigarettes?

A. Yes, it is additives --

Q. And is Sir Walter Raleigh aromatic pipe tobacco a cigarette?

A. No. But people can surely roll Sir Walter Raleigh into a cigarette. And they certainly smoked it.

Q. Sir, there was no obligation, there was no request, and there was no duty on Brown & Williamson to report additives on

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pipe tobacco to the HHS at the time you were there; is that correct or incorrect?

A. Well, we are going to define duty loosely here. And I want to say, yeah, they had a duty to report, but they didn't report it under the rules.

Q. All right, sir, let me go on. At the time you were there in 1992, and supposedly wrote this memo, Scott Appleton was the chairman of the additives committee; was he not?

A. Yes, he was.

Q. Why did you not send him a copy of this memo? Additives was his bailiwick, wasn't it?

A. Because he didn't want to be involved in it.

Q. How did you know that?

A. Because he told me he did the initial calculations for it which I supplied you that documentation during discovery.

Q. Did you tell him after you got this NTP report that you had concerns?

A. Yes, I did.

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Q. Did you take the report and go over it with him?
A. No, I did not. Which report?
Q. The draft report, the NTP report that you claim instituted this discussion or this memo to Mr. --
A. I went over it briefly, yes.
Q. Did not he take the report to you?
A. I had a report independently of Scott Appleton.
Q. A report came to Mr. Appleton?
A. A copy came to Mr. Appleton and I had a report independently.
Q. How did you get it? It's a draft report. How did you get it?
A. It was sent to me in the mail.
Q. By whom?
A. I can't recall who, I had it --
Q. An anonymous person?
A. I got lots of things. I don't always look at my mail, who sends it.
Q. Who would sent send you a draft NTP report, sir?
A. Who would seen send it to me?

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Q. Yes.
A. Any of the scientists that I know.
Q. Who? Name one.
A. Jack Henningfield.
Q. Jack Henningfield? How he would get the NTP report on coumarin? He is a clinical pharmacologist.
A. I received a copy independent of Scott Appleton.
Q. From where? An anonymous source?
A. I cannot recall.
Q. Sir, what mailing lists are you on that would send you the NTP report as a matter of course?
A. What mailing lists? I cannot --
Q. Are you a member of FEMA?
A. I have gone to a number of FEMA meetings.
Q. Are you a member of FEMA?
A. Is the company a member of FEMA?
Q. Are you a member of FEMA?
A. I don't recall.
Q. You don't recall?
A. I attended a number of FEMA

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meetings.
Q. Sir, the report came to Mr. Appleton and Scott brought it to you. Did he not?
A. And I had a copy before Scott brought it to me, I'm sorry.
Q. You just can't remember how you got it?
A. I can't remember how I got it. I don't remember how every piece of mail comes to me.
Q. So this draft report that came to Dr. Appleton was reviewed with you and he; was it not?
A. We went over it. Yes, we did.
Q. Now, Dr. Appleton was hired at your suggestion, wasn't he?
A. Yes, he was.
Q. He was the only toxicologist at B & W; is that true?
A. That is correct.
Q. You are not a toxicologist, are you?
A. I am not a toxicologist.

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Q. Interpretation of animal studies falls within the expertise of a toxicologist; does it not?
A. And biochemists.
Q. Sir, does it not fall within the expertise of toxicologists?
MR. ALDOCK: He answered that question.
THE COURT: No, he didn't. He assumed something else.
MR. ALDOCK: He said, "And biochemists."
THE COURT: Well, "And" doesn't give it yes or no.
A. I believe a toxicologist as well as a biochemist can interpret this data.
Q. He was in charge of the scientific and regulatory affairs with respect to additives for B & W; was he not?
A. I believe he was and I was his immediate supervisor.
Q. His job was to acquire and maintain data on ingredient safety; was it not?

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A. I believe that was his charge.
Q. He was in charge of R & D internal guidance on ingredient safety; was he not?
A. No, I was.
Q. Sir, let me show you what we will mark as the next exhibit in order, which is 41.

- - - - -

Thereupon, Wigand Exhibit No. 41 was marked for purposes of identification.

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MR. SHEFFLER: Okay. Counsel, it's page 562503295.
BY MR. SHEFFLER:
Q. Now, sir, this is part of a document entitled The Corporate Orientation, September 9, 1992, for research and development; is it not?
A. Um-hum.
Q. And in it, sir, it has a description of scientific and regulatory affairs; does it not?
A. Yes, it does.

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Q. Doesn't it say BS Appleton manager?
A. Um-hum.
Q. Does it say R & D internal guidance on ingredient safety?
A. Yes.
Q. Isn't that what he was a manager of?
A. Certainly, yes.
Q. Okay, sir. When Dr. Appleton gave you this draft report, he discussed the significance with it – of it; did he not?
A. Yes, and he expressed a concern.
Q. Now, sir, did Dr. Appleton tell you that his review of the NTP study did not change in any way his view that coumarin, as used in Sir Walter Raleigh aromatic pipe tobacco, was safe for human consumption; isn't that right?
A. No. Do you have a document that supports that?
Q Did you not have a meeting with Dr. Appleton --
A Do you have a document --

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MS. WERTHEIMER. Answer the question.
Q. Did you not have a meeting with Dr. Appleton on this draft NTP report?
A. Yes.
Q. And there was only you and he there, weren't there?
A. Yes.
Q. And there were no minutes of the meeting, were there?
A. But there was some documentation created during the meeting or brought to the meeting.
Q. Yes. It was an NTP report.
A. No, there was also calculations in Mr. Appleton's hands.
Q. Sure. There were calculations drawn up with respect to exposure and transfer rates, weren't there?
A. Yes.
Q. And a wide range of scenarios, weren't there?
A. That's correct.
Q. Everywhere from a hundred percent

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down to 20 percent; weren't there?
A. I believe so, yes.
Q. And weren't there also in this -- in these calculations, suggested ranges of ingestion from the product?
A. No. I think what Mr. Appleton did is took and calculated from the data what the safety levels were to both no L and low L's and the safety factor for a hundred and a thousand.
Q. Didn't Dr. Appleton tell you that the reasons why the NTP draft report did not change his opinion that coumarin was used -- as used in Sir Walter Raleigh –
A. I don't believe he ever said that.
Q. -- was safe? Didn't he tell you that one of those reasons was because of the differences in metabolism of coumarin between rodents and humans? Didn't he tell you that?
A. That may have been his opinion. I cannot recall it in specific.
Q. Did he discuss the significance of those differences with you at that meeting

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interpreting the NTP draft report?
A. He may have discussed that with me.
Q Didn't he you tell you about the limitations of the gavage study as a test method?
A. He may have discussed that with me.
Q. Didn't Dr. Appleton tell you about the Nye report?
A. I believe there was a Nye report but -- yes.
Q. And he talked to you about that at that meeting; did he not?
A. That was a 1990 report.
Q He talked to you about it at that meeting; did he not?
A. Yes, he did. Yes, he may have. Yes, I think he did.
Q. Did you read the Nye report, sir?
A. Yes, I did.
Q. Let me have it.
MR. MILLIMAN: Judge, Let me say something, if I can. I talked to one of the

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reporters back there, and they are having a very, very difficult time, and they asked me to say something about the talking and the transcription. They are having a very difficult time transcribing it and getting things straight, and they would ask if we could, if everybody could just kind of help the court reporter out.
THE COURT. Perhaps in your absence I have cautioned –
MR. MILLIMAN: Okay.
THE COURT: – both of them to slow down and not interrupt each other and not talk too fast. And I believe they are doing a little better now.
Q. Trying judge.
THE COURT: We don't need this on.
(Discussion Off the Record.)
- - - - -
Thereupon, Wigand Exhibit No. 42 was marked for purposes of identification.
- - - - -
BY MR. SHEFFLER:

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Q. What we've handed you, sir, is Wigand 42. And is that an assessment of the use of coumarin as an additive in pipe tobacco?
A. Yes, and it's dated November, 1990.
Q. Okay, sir. Did you review this with Dr. Appleton?
A. I reviewed this before Dr. Appleton joined the company.
Q. Did you review this with Dr. Appleton?
A. I reviewed parts of this most likely with Dr. Appleton.
Q. Okay. Since you reviewed the report – you reviewed the report before Dr. Appleton joined the company, so, therefore, you must have reviewed the report and found out that Dr. Nye points out the differences in metabolism of rodents and primates with respect to coumarin?
A. He most certainly did.
Q. And in his assessment of an allowable daily intake for coumarin Dr. Nye

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relied upon baboon studies, didn't he, because they more closely mimic the metabolic profile for coumarin in humans; is that right?
A. So far, yes.
Q. Do you have any reason to disagree with that conclusion of Dr. Nye?
A. In 1990, no.
Q. Do you have any reason to disagree with his conclusion today?
A. Yeah. I have reason to disagree with the whole issue of using coumarin. I mean, it's a --
Q. Sir, the question was the metabolism of coumarin. Dr. Nye -- by the way, Dr. Nye was not an employee of Brown & Williamson, was he?
A. No, he was a paid consultant.
Q. He was at the T-E-R-R-A, Incorporated?
A. That's his company. He was a sole practitioner.
Q What is Dr. Nye, do you know?
A. Based on this report here, it

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looks like he is a Ph.D.
Q. And what is he a Ph.D. in?
A. It's not defined. I think he may have been a Ph.D. in biochemistry or toxicology, I don't know.
Q. Since the report is a toxicological report, would it indicate to you that he was probably a toxicologist?
A. Well, if he was, he would have put DABT after his name.
Q. Is every toxicologist a member of the DABT?
A. If they are going to give a technical assessment, I mean, if you want to take credence with a technical assessment here, I would assume he is writing this as an expert toxicologist. Is he not?
Q. Okay. You, of course, are not in the DABT, are you?
A. I am not.
Q. Okay. Dr. Scott Appleton is?
A. Yes, he is.
Q. By the way, let's go on with this Nye report.

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What do you have, sir, that would indicate today that it's better to use rodent studies than primate studies because of metabolism differences?
A. What do I have today?
Q. You said at the time Dr. Nye wrote this report, he used a study in primates versus a study in rodents because primates metabolize stuff differently. Then I thought that you said that today you disagree with that.
What is it you have learned since 1990 that indicates rodents metabolize coumarin in the same way humans do and primates don't?
A. Oh, I have learned something.
Q. What have you learned today that talks about the metabolic differences between primates and humans?
A. What I know today is that the NTP in 1993 both in its draft and final report said that in animals it's carcinogenic and in humans it's a hazardous chemical.
MR. SHEFFLER: I move to strike

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your Honor. I asked him about what he learned about metabolism.
THE COURT: Yes, strike.
Q. Have you learned anything about metabolism since 1990? Have you learned anything about metabolism and the differences in metabolism from 1990 until the present?
A. No.
Q. Okay, sir. Now using the baboon study he calculated a milligram per kilogram a day intake dose that caused no observable effect on any organ in the body; did he not?
A. What page are you on?
Q. It's the whole document, but his conclusions are page 13 and 14.
THE COURT: Look at 13 and 14, please.
A. Um-hum.
Q. Okay. So that's what he did, he concluded that there was an ADI – what's an ADI, sir?
A. Allowable daily intake.
Q. Allowable daily intake. He

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concluded that an ADI based on the baboon studies would be about 67.5 milligrams per kilogram a day; isn't that right?
A. Yes.
Q. Actually that's not correct.
A. It's 67.5 I believe.
Q. It's actually not correct. That's not the ADI because that's what the, that's what the dose would be for the no effect level, isn't it?
I'm sorry, I didn't I mean to mislead you, sir. Take your time and look at this document. Take your time and look at it because I think it's explained in the second paragraph there. And if you would read that second paragraph, what Dr. Nye found, was that --
MR. ALDOCK: Wait a minute, he is still talking. Your Honor, I'm concerned, to be sure we want to move the deposition along, but he gives him a document, he doesn't let him read it, he then keeps talking while he says okay you can read and then he keeps talking.

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He's got, in all fairness have a chance to read the page.
THE COURT: All right.
MR. SHEFFLER: Your Honor, that's fine, that's fine.
MR. ALDOCK: I mean, on that basis, it's just not fair.
MR. SHEFFLER: Your Honor, that's fine. But when you talk about being unfair, he's stated, more than once, that he's read this document. He went over it with Dr. Appleton. He supposedly knows about it. I have no problem with him reading it. He can take his time and read it.
MR. ALDOCK: I read a lot of documents three years ago. I don't remember many of them.
THE COURT: If you are going to pin him down specifically on something in there, point to the page and the paragraph.
MR. SHEFFLER: Okay. I'll point to the page and the paragraph.
Q. Sir, look at the page and paragraph -- 13, paragraph two.

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A. Um-hum.
Q. Okay?
A. Um-hum.
Q. Have you read that paragraph, sir?
A. I read it.
Q. And doesn't it say, although the changes in the endoplastic reticulum progress with time the 67.5 milligram per kilogram a day dose level was not associated with any change in biochemical parameters of liver function such as enzyme activity, et cetera?
THE COURT: Slow down.
A. Um-hum. And?
Q. Then he says, thus the 67.5 milligram per kilogram per day dose level could be described as the no-effect level; isn't that right?
A. Yes. But?
Q. Then Dr. Nye goes on to say, however, as an extra margin of safety, the 22.5 milligram per kilogram will be used in the derivation of the ADI?
A. Um-hum.

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Q. Now, turn to next page, sir, if you would.
A. Well, I think there is some relevant information on this page.
Q. Oh, read it, read it. Take your time.
A. I mean, they are talking about safety factors. But go on.
Q. The safety factor that Dr. Nye used was a hundred, wasn't it?
A. Yes.
Q. The factor of a hundred is used when extrapolating from long-term animal studies to humans; is it not?
A. That's one of the factors, yes.
Q. Now, sir, doesn't it say here, the factor used to calculate an ADI from the Evans study, that's the baboon study, is 100; do you see that?
A. Um-hum.
Q. He says, this is justified since the study in baboons was chronic in nature, two years; do you see that?
A. Um-hum.

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Q. No additional adjustment was necessary since the 22.5 milligram per kilogram day dose represented a no-effect level; do you see that?
A. Um-hum.
Q. Then he calculates the ADI for the -- what is the ADI again?
A. I think I already told you what it was.
Q. I know but I forgot. What is it? What is it, sir?
A. Allowable daily intake.
Q. Okay. It's allowable daily intake. So he calculated the allowable daily intake using this factor, safety factor of a hundred, and he got .225 milligrams per kilogram a day, right?
A. Um-hum.
Q. That means, according to Dr. Nye, .225 milligrams per kilogram per day is the amount ingested, that could be ingested, over a day's period and be within his allowable daily intake for coumarin; right?
A. That's what this says.

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Q. And for a 70-kilogram or a 154 pound man, the ADI is 15.8 milligrams a day?
A. Um-hum.
Q. And he got that by multiplying 2.25 by 70?
A. Um-hum.
Q. That's the way you do it, sir?
A. I think that's the way you do it.
Q. And it's your understanding as a biochemist that Dr. Nye's conclusions here all correct?
A. His calculation here is correct.
Q. Okay. And the way he did it, the way he went about the calculations is correct?
A. The way he went about it is one method of going about calculating it, yes.
Q. Okay. Now, let's see what he did when he tried to extrapolate this and see whether or not an average smoker of Sir Walter Raleigh aromatic pipe tobacco would be within that daily dose.
A. Um-hum.
Q. Okay. He goes through and he

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says, the parameters below were used to calculate intake of coumarin present in pipe tobacco; do you see that?
A. Um-hum, I see that.
Q. The first one he uses is the concentration of coumarin in pipe tobacco, it's about 1700 milligrams per kilogram. I think we have already established that. You say it's 1720 but it's 1700 parts per million, about 1700 milligrams per kilogram; is that right?
A. That's approximately correct.
Q. And he used people who smoke about ten bowls of pipe tobacco a day. Do you think that's about right?
A. That's a good assumption. That's an assumption here.
Q. Okay. It's a reasonable assumption; would you agree?
A. It's an assumption.
Q. Is it a reasonable one?
A. It could be high, it could be low. It's an assumption.
Q. Is it a reasonable one?

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A. I don't know if it's reasonable or not. You will have to ask Dr. Nye that. It's an assumption.
Q. All right, sir. He could have assumed 3,294 bowls, couldn't he?
A. Or two million 644.
Q. Those would be unreasonable, wouldn't they?
A. They would probably be unreasonable.
Q. Okay. The amount of tobacco per bowl he used was 2500 milligrams; is that correct?
A. That's again an assumption.
Q. Is it reasonable?
A. It's reasonable. It depends on how one packs the pipe, what the size of the pipe is, but it's a reasonable assumption.
Q. Okay. And he said that the fraction of coumarin there pipe tobacco absorbed into the body would be .15, a typical high value. So he used it very conservative value .30; do you see that?
A. By his estimation.

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Q. Some people would call that the transfer rate, sir?
A. I think that's sometimes called the transfer rate.
Q. Sir, isn't it true that that is a typical transfer rate that is used when addressing additives in pipe tobacco or cigarettes for that matter?
A. I think that could be a very low value. I think you could use as high as 80 percent or a hundred percent.
Q. A hundred percent? To get a hundred percent of the additive in a cigarette would you not have to smoke the entire cigarette in one drag and burn it all up? You would have to smoke the whole thing in one time, in one drag; would you not?
A. I'm not so sure transfer rate means that you get it all at one time.
Q. Well, if you said a hundred percent, that means you get a hundred percent of the compound in the cigarette at one time?
A. I can give you an example of some

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transfer rate of tobacco products.
Q Sir, answer my question first.
A What?
Q To get a transfer of an additive that was in a cigarette rod.
A. Um-hum.
Q. Let's talk about cigarettes for a moment, or in pipe tobacco, but let's talk about cigarettes, it's easier. To get the additive in a cigarette.
A. Such as coumarin?
Q. Let's say coumarin was in a cigarette.
A. Or nicotine.
Q. Let's say -- let's say you wanted to get the whole additive transferred from the cigarette to you, a hundred percent, you would have to take one drag, burn that whole cigarette down, and consume all of the tobacco in it to get a hundred percent transfer rate; would you not?
A. To get a hundred percent of what's in the tobacco, yes.
Q. Okay. Nobody smokes a cigarette

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that way, do they?
A. I don't know, I don't smoke.
Q. You don't smoke now but you did. Did you smoke that way?
A. No, I did not.
Q. Okay. Do you know anybody who does?
A. I don't know. I couldn't say.
Q. You think there are people out there who light a cigarette and take one puff and the whole thing gets consumed. Do you think that happens?
A. Let's get back to transfer rate.
Q. It would be unreasonable to use a hundred percent transfer rate; wouldn't it, sir?
A. To use a hundred percent would show you the maximum boundary. But you could use that as an assessment.
Q. Of course you could, of course you could.
A. And this is being an assumption, you can put whatever assumptions you wanted in there.

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Q That's true. But could it be a reasonable assumption? To make a reasonable assumption of what would be transferred from tobacco to a human smoking, isn't it reasonable to say that generally it's .12 to 20 percent -- excuse me, it's 12 to 20 percent of the additive in a cigarette or in a bowl of tobacco is consumed or transferred out of the product when you smoke it; isn't that reasonable?
A. No. Nicotine transfers at a 95 percent rate.
Q. You are telling me, sir, that if you smoke a cigarette and you consume -- that you smoke a cigarette, sir, and what you consume is what you puff. You will agree with that?
A. Yes.
Q. Do you puff 95 percent of the cigarette, sir?
A. 95 percent of the nicotine that is present in a cigarette is transferred.
Q. Sir, let's see if we can deal with this. Is nicotine some kind of unique

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substance? In other words, is it transferred at some outlandish rate?
A. It's transferred intact, yes.
Q. Okay. And so is coumarin, isn't it?
A. Well, if it's transferred intact why would you take such a low number here?
Q. Well, isn't almost all of the additives that you know transferred intact unless they are volatized?
A. All additives unless they are volatile? I think that's generally a recognized guideline.
Q. Okay. So isn't it true, sir, that nicotine, like other additives, transfers at about 15 percent of the rate in the tobacco, not 95 percent?
A. I don't agree with that but I would have to check again. I think it's high.
Q. Why don't you agree with that, sir? What do you have that says that's incorrect?
A. The ability to go back and

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recalculate it and look at the literature.
Q. What literature would you look at?
A. I would look at any of the literature by Benowitz.
Q. By the way, who is Benowitz?
A. Neal Benowitz? He's a pharmacologist.
Q. Actually, what is his training; do you know?
A. Toxicology, pharmacology, actually it's clinical chemistry.
Q. Sir, isn't it true that Dr. Benowitz is on the staff at the hospital in San Francisco as a cardiologist?
A. He is a Ph.D. cardiologist, I believe.
Q. He is an M.D., isn't he?
A. I think he is an M.D., Ph.D, if I am not mistaken.
Q. Sir, do you know if Dr. Benowitz is a chemist?
A. Do I know if he is a chemist?
Q. Let me strike the question.
MR. SHEFFLER: Your Honor, let

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me -- I will withdraw the question.
Q. Tell me, sir, what studies that you are aware of by Neil Benowitz that address the transfer rate of nicotine.
A. I would have to go and refresh my memory. My memory serves me that Benowitz may indeed have published studies on nicotine transfer. Let's stay with coumarin here.
Q. All right. We'll stay with coumarin?
A. We're going sidetracked.
Q. Okay. Let's stay with coumarin.
A. You want to get done and I would like to get done. So let's stay here with coumarin and transfer rate and the assumptions here.
Q. All right. Answer my questions, sir, and we will. Isn't it correct that a 15 percent rate for transfer for coumarin in pipe tobacco is a reasonable estimate?
A. It's an estimate. It's not based on any scientific data.
Q. Wasn't there data done at the time

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about transfer rates for additives?
A. I don't know of any data that was done that looked at the transfer rate of coumarin.
Q. Well, you told me about data that looked at transfer rates for other substances; correct?
A. I don't know of any study done by Brown & Williamson that looked at the transfer rate of coumarin.
Q. Well, if coumarin was distributed equally in the rod, why would it transfer differently than other additives distributed equally in the rod?
A. Because some of the additives can be pyrolized.
Q. Okay. So you are assuming that that is enough pyrolized --
A. Burnt.
Q. They are not burnt here, they are paper. Coumarin -- I think you told us that coumarin, like most additives that are highly volatized, were transferred intact. So we are talking about additives that

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transfer, correct?
A. So out of that you would have something that goes off in side stream. Essentially what you would, could optimally --
THE COURT: Go ahead and finish your answer. I think he needs a break. Is that what you're saying?
THE VIDEOGRAPHER: Eight minutes.
THE COURT: Okay.
Q. Some of it goes off in side stream, sure. So obviously, there is going to be a fairly standard transfer rate for the chemicals in the tobacco?
A. It's going to be less than a hundred percent.
Q. And it's going to be less than 80 percent?
A. I don't know about that.
Q. It's going to be less than 50 percent; isn't it, sir?
A. I can't agree with that.
Q. Well, Dr. Nye found that it was probably 15 percent, didn't he?

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A. Then why did Scott Appleton provide me data which look at transfer rates of 80 percent?
Q. Why did he provide you data to look at transfer rates of hundred percent? Wasn't he giving you ranges?
A. That's what I think -- you can look at zero to a hundred percent as a range.
Q. Sure. And the most reasonable range would be 15 percent?
A. I don't agree with that.
Q. Okay, sir. You don't have any studies to state for me now but you don't agree?
A. Mr. Nye didn't have any studies when he did this either.
Q. Sure he did. Did he not have all of the studies that were available on the transfer rates of other additives that, similar to coumarin, were transfered in smoke?
A. Did Mr. Nye used data generated by himself to produce this report or did he

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survey the literature to produce this report?
Q. Well, sir --
A. My understanding of this report was a literature search.
Q. Well, sir --
A. And his best --
Q. -- I'm going to give you the literature search, 16 and 17.
A. He did no research on the transfer rate of coumarin to generate this assumption.
Q. Sir, was he not provided information about transfer rates of additives that Brown & Williamson knew about and gave to him for the purposes of coming to his transfer rate in his report?
A. I don't know that.
Q. You don't know he didn't, do you?
A. I don't know what the, what data was given to him by Brown & Williamson relative to the transfer rate of coumarin.
Q. Okay. Will you agree, sir, that he didn't use the 15 percent typical high

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value that he calculated, but rather used a very conservative 30 percent high value?
A. That's his opinion here. That is his assumption, depending on what the intent of what he wanted at the end of it.
Q. By the way, sir, are you aware that B.A.T. has published studies on transfer rates of additives?
A. Have they published rates on coumarin?
Q. Additives, sir.
A. Additives. They may have, yes.
Q. And are you aware of the average transfer rate in those studies?
A. I can't recall it now.
Q. It wasn't 80 percent, was it, sir?
A. I don't know what the report said. Are we talking about additives in the B.A.T. study? I know one thing --
Q. About transfer rates you mean?
A. No, go ahead. Let's stay on track here.
Q. Okay. Look at the exposure calculation that he did.

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A. Um-hum.
Q. Assuming, assuming a 1700 milligram per kilogram of coumarin, assuming ten bowls smoked a day, assuming that the transfer rate was the very conservative 30 percent, he found that the amount of coumarin a person could ingest safely in a day was 12.8 milligrams a day. I mean -- excuse me. The amount the person would ingest was 12.8 milligrams a day; is that right?
A. Given all those assumptions his calculation does show that.
Q. Given a more realistic fraction of absorbed coumarin, according to Dr. Nye, of .15 the calculated dose of coumarin is 6.5 milligrams a day?
A. 6.4.
Q. 6.4, thank you, sir. 6.4 milligrams a day. That's what you would get from smoking ten bowls of Sir Walter Raleigh aromatic pipe tobacco. Then he goes on to say, these conservative exposure calculations indicate that at a minimum --

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excuse me, that's at a coumarin concentration of 1700 parts per million in pipe tobacco, coumarin intake would not exceed the 15.8 milligram a day ADI, adjusted for safety.
A. Um-hum.
Q. That's what his conclusion was. Then he finalizes by saying, thus, intake of coumarin from smoking pipe tobacco containing 17 parts per million coumarin should have no adverse effect on human health. Did he say that?
A. That's what he said here, yes.
Q. And didn't Dr. Appleton review this report with you?
A. He reviewed part of it with me, yes.
THE COURT: Off the record.
THE VIDEOGRAPHER: Going off the record. The time is approximately 11:30.
(Discussion held off the record.)
(Recess taken)
MR. SHEFFLER: Let's mark this next.

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Thereupon, Wigand Exhibit No. 43 was marked for purposes of identification.
- - - - -
THE VIDEOGRAPHER: Back on the record. The time is approximately 11:42.
BY MR. SHEFFLER:
Q. Mr. Wigand, I would like to hand you a document which we have marked as Wigand 34.
A. Can I assume we are finished with Mr. Nye's report?
Q Keep it handy, sir, we may refer to it.
A. Exhibit 43?
Q Exhibit 43. Mr. Wigand, is that something that you wrote?
A. I believe this is my handwriting, yes.
Q. Did you write page two, sir?
A. I believe that's my handwriting also.
Q. And page three, sir?

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A. Um-hum.
Q. How about page four?
A. Did I write that?
Q. Well, the writing on page four; is that your handwriting?
A. I believe that's my handwriting.
Q. Would you read for us, sir, what is at the very top of the page?
A. Prior to NTP there was no hard evidence linking coumarin to any specific disease, and particularly to lung specific, as did the NTP study.
Q. Okay. Now, sir, when did you write this?
A. When did I write this on this sheet?
Q. No, when did you write -- well, did you write this document that we have identified here as Wigand 43? Did you write this entire document at one time or more than one time, or at more than one time?
Counsel is indicating to you it may be in reverse order, I believe.
MS. WERTHEIMER: Considering

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whether it is or is not.
Q. I have no idea, sir. This is a document you produced to us; is it not?
A. Yes, it is.
Q. And it's Bates stamped JSW2533, 2534, 2535, and 2536?
A. Yes.
Q. Is it out of order, sir?
A. I don't think it really matters if it's in order or not. I think the last page is right and the first page is right.
Q. The two middle pages might be reversed?
A. It may be let's go on.
Q. Sir, in the last page -- there is typewritten pages there; do you see that?
A. Um-hum.
Q. And it says, at the top, three total pages, J period colon. Now, are the three total pages part of the first three pages of this document?
A. I believe they refer to the prior three pages.
Q. Okay. And J period colon, that's

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addressed to who?
A. I believe that's addressed to me.
Q All right. It goes -- and the typed portion of this -- did you type this, sir?
A. No, I did not.
Q. It says, she needs a little more background on what these figures are, where you got them, and what they mean. Who is the "she"?
A. I believe it is a toxicologist for the federal government.
Q. Okay. When did you create this, this document?
A. This document?
MR. ALDOCK: "This" meaning what, the fax or the --
MR. SHEFFLER: I'm sorry. Meaning Wigand 43.
MR. ALDOCK: The whole document?
MR. SHEFFLER: The whole document.
MR. ALDOCK: This may not be one document.
MR. SHEFFLER: I think we

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established that it was.
MR. ALDOCK: No, we did not.
Q. Sir, is this one document? I thought you said the first three pages were the pages attached to the last typed and written page.
A. I believe it's the same document. It's what was referred to in the first, in the total three pages.
Q. I think your counsel has some confusion here. If you want to take a second and talk to him, go ahead.
(Discussion held off the record)
A. Go ahead.
Q. Sir, were all of these pages created at the same time?
A. I believe the first three pages were created at the same time.
Q. And was the last page created before or after?
A. I believe the last page was created after the first three pages.
Q. Okay. Now, when did you create the last page?

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A. I didn't create the last page. I created parts of the last page.
Q. Okay. When did you write on the last page, sir?
A. Sometime in May of 1995.
Q. And when did you receive the typewritten part? About the same time?
A. I believe in May of 1995.
Q. And --
A. I'm sorry, 1994. May I correct myself, please?
Q. You are referring to -- what did counsel point out to you there?
A. I'm looking at the bottom line, there is a fax number there. And a date and a time.
Q. Oh, I see. February 14th, 1994.
MS. WERTHEIMER: Pardon me, I think it's Friday.
Q. Oh, Friday, Friday I'm sorry. Is it Friday of 1994 you created this?
A. I believe this is May 14th, 1994, a Friday, at, at least the fax indicates this is when it was transmitted.

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Q. Okay. And what's 301-443, et cetera?
A. It's a federal agency.
Q. What federal agency?
A. The FDA.
Q. So this fax came to you from the the FDA?
A. This fax came to me from the FDA.
Q. So sometime in May of 1994 you were communicating with the FDA?
A. I believe I stated that yesterday.
Q. And you were communicating about B & W's products; were you not?
A. I believe I stated that yesterday. And I don't think that B & W or anybody could prevent me from cooperating with the federal regulatory agency on matters of public health and safety. I have said that yesterday and I'm going to say it again and again and again.
Q. I know, sir, you will say it again and again and again. But it is true that you were communicating information that was confidential to the FDA in May of 1994?

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MR. ALDOCK: Objection, there is nothing that says anything was confidential.
Q. Did you think that you were communicating information that was confidential?
A. No, I did not.
Q. You did not think that information that you learned at B & W was confidential?
MR. ALDOCK: Objection.
MR. SHEFFLER: I'm asking a question.
MR. ALDOCK: There is nothing that says this was learned at B & W.
Q. I'm asking a question. You did not think in 1994, May, that information that you had learned during your time at B & W was confidential?
A. You will have to describe to me what information means before I answer that question.
Q. Information? We are going to use the -- information: As defined by the American Heritage College Dictionary.
MR. ALDOCK: One second, please.

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MR. SHEFFLER: I'm sorry, you are talking to your client.
(Discussion held off the record.)
MR. SHEFFLER: Let the transcript reflect that counsel and the witness were conferring. Thank you, your Honor.
Information: Knowledge derived from study, experience or instruction.
Now, using that as a definition, sir, did you derive any knowledge from your study, experience or instruction while at B & W that you communicated to the FDA in May, 1994?
A. Yes.
Q. Okay. And isn't it true, sir, that information that you learned at B & W under your contract that you signed and agreed to in November of 1993 was not to be communicated to others unless you put B & W on notice?
A. I didn't know my contract prevented me from talking to a federal agency or the government about public health and safety issues.

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Q. Was there an exception in your contract?
A. No.
Q. Did you talk to B & W and alert them when you were contacted by other federal agencies?
A. In the prior, I did.
Q. Okay. But this time you didn't?
A. That's correct.
Q. Did you understand you were breaching your contract at the time?
MR. ALDOCK: Objection.
THE WITNESS: No, I did not.
THE COURT: Sustained. That's an ultimate question.
Q. Sir, did you understand that you were providing information in contradiction to what you agreed to under your understanding of that agreement?
A. No, I did not.
Q. Now, could you tell me, sir, who Sarah Henry is?
A. Who is Sarah Henry?
Q. Yes, In the fourth, fifth

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typewritten line?
A. I think I gave you that information already.
Q. Is it the same sheet?
A. Sarah Henry is a toxicologist for the federal gove nment.
Q. And let's see. J.M. is with the FDA as well?
A. Yes.
Q. Okay. Is that Mr. Jack Mitchell?
A. It is Jack Mitchell.
Q. Okay. Now, you have some conclusions down here, sir. One is that at a 50 percent transfer rate, the exposure is .35 milligrams per kilogram per day. Do you see that?
A. That's correct.
Q. Isn't that the – well, we will go through that in a minute. And then you have for a 1.7 times safety factor.
A. Um-hum.
Q. Then you have the transfer rate for coumarin is about 75 percent. Do you see that?

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A. Um-hum.
Q. This is information that you told to the FDA to either Mr. Mitchell or Ms. Henry?
A. It's information I shared with the FDA.
Q. Do you know who you shared it with?
A. I shared it with a number of people at the FDA.
Q. Well, who did you send this fax to after you wrote on it? If you sent it to anyone. Did you send the fax to anyone after you wrote on it?
A. I believe I sent this fax back to the FDA.
Q. To who?
A. To Mr. Mitchell.
Q. Okay. Sir, if you would turn to the page right before that.
A. Um-hum.
Q. Do you see at the top where it says, tumors induced at mice at 200 milligrams per kilogram?

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A. Um-hum.
Q. That information you derived from the NTP report; correct?
A. The safety factor or coumarin.
Q. No, tumors induced in mice at 200 milligrams per kilogram.
A. Yes, most certainly.
Q. You got that from the NTP report. That was what was reported the only dose reported in the female mice?
A. Um-hum.
Q. And there was no -- just for the record, I think we have established it, but there was no other increased incidence in lung adenocarcinoma in any of the other strains or species or sexes studied?
MR. ALDOCK: I object. I don't know what we have established in that regard. That question was so long --
MR. SHEFFLER: Well, let me ask you a question. Before I ask you a question --
THE COURT: Sustained.
Q. -- they studied two strains of

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rodents, correct?
A. Yes.
Q. And the rats didn't show anything, did they, in any of the doses with respect to lung tumors; isn't that right?
A. I believe that's correct.
Q. And in the mice the only lung tumors that were increased were in the females, mice?
A. Female mice, that is correct.
Q. Okay. And that's a 14 percent level?
A. At 200 milligrams per kilogram.
Q. Okay. Then you have down here, sir, a safety factor for humans, a hundred times carcinogenic rate in mice.
A. Um-hum.
Q. Does that mean that the safety factor you were using in your calculations of this is a hundred times whatever the mice level is?
A. That's normally what happens in in-vivo studies, you use a factor of a hundred times for safety factor in humans.

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Q. That's exactly what Dr. Nye used; is that correct?
A. No, I believe Dr. Nye used ten but I will have to go back and refresh my memory again.
Q. That's why I wanted you to keep the book.
A. And I don't believe he calculated a safety factor. I believe what he calculated was an ADI first.
Q. Do you see on page 13, sir, to make it easy for you?
A. Okay.
Q. Do you see where it says a factor of a hundred is used when extrapolating?
A. For long-term animal studies, yeah.
Q. What did he use? If you look at the next page -- the factor used to calculate an ADI from evidence is a hundred?
A. It's a hundred.
Q. So he used the same safety factor you did, didn't he?
A. Yes.

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Q. Now, you have got an arrow pointing there to .2 milligrams per day; right?
A. Um-hum.
Q. And you got that by dividing the allowable dose by the safety factor; correct?
A. That's correct.
Q. And a hundred divided into 200 equals .2?
A. I think so.
Q. A hundred divided -- do you have the calculator there, sir? Would you divide 200 by a hundred for me, please?
A. It's two.
Q. So that's an error, isn't it?
A. I believe that's an error, yes.
Q. That should be two; correct?
THE COURT: I'm sorry, I thought you were going to write on the exhibit.
MR. SHEFFLER: Your Honor, I would like the witness to write and correct it and put his initials on it.
Q. If you would, sir, correct the

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exhibit as it should be two, not .2 milligrams per day. Would you do that, sir?
MR. ALDOCK: If he thinks it should be changed.
Q. Should it be changed, sir?
MR. ALDOCK: We have demonstrative evidence here.
Q Should it be changed, sir? Is a hundred divided into 200 .2 or is it two?
A. I believe it should be two.
Q. Well then change it.
THE COURT: Put it to the side of it and initial it is what he's asking you to do. Do you want him to circle the correction?
MR. SHEFFLER: Circle the correction, if you would, sir.
THE COURT: Uh-huh and your initials inside it.
Q. So in fact, sir, what you did when you sent this to the FDA and Mr. Mitchell, you had made an error of tenfold, you were tenfold wrong in the error, in the data that you created for Mr. Mitchell with respect to

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the safe dose as calculated by you.
A. I believe there is an error there, yes.
Q. A tenfold error, isn't it?
A. There is an error there.
Q. Is it a tenfold error?
A. A tenfold error.
Q. Okay, sir. Now, in your last page of this document, we will get to the calculations as -- after lunch. But let me just go to the last page for a second. You said the transfer rate for coumarin is about 75 percent. And you created this document in May of 1994.
A. Which documents are you talking about?
Q. The writing on this.
A. Yes, yes.
MR. ALDOCK: On the last page?
Q. The writing on the last page of Exhibit 43.
A. That's correct.
Q. What information, sir, did you have available to you, and did you consult,

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to get a transfer rate of about 75 percent?
A. It was an estimation on my part. Just like all the other estimations.
Q. Sir, Dr. Nye said that a high estimation would be 15 percent and that a very conservative estimate would be 30 percent?
A. I understand what Dr. Nye or Mr. Nye or Dr. Nye said in his report in 1990.
Q. Did you have any information --
A. However -- however, when I looked at the data in the NTP report, they showed it was carcinogenic in mice, and it was a potential hazard to humans, and among other things and, which we haven't got into, is the other data here that suggested you really need to take pause for thought in terms of considering other public health and safety.
It has an Ames positive, it's got sister chromatid exchange positive, it's chromosomal aberration positive, and it's from the NTP study. So there was other data that supports it.

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Yeah, I made an error in a calculation. That does not take away from the concern I had of exposing humans to a potential health hazard.

MR. SHEFFLER: Your Honor, I move to strike all this about --

THE COURT: Sustained. That was not the question.

Q. What do you have, sir, or what have you learned since 1990, and if you want to refer to the NTP report I would be happy to look at it, but what did you learn about transfer rates of additives used in smoke between the time Dr. Nye's report and you reviewed it, and between the time you discussed Dr. Nye's report with Dr. Appleton?

What have you learned about transfer rates that would indicate that 75 percent was the transfer rate for coumarin?

A. I believe in the NTP report there is some discussion in terms of transfer rate.

Q. Transfer rates from tobacco to --

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okay. Find it for me, please.

A. I would have to -- do you mind if I spend time looking through this?

MR. SHEFFLER: Why don't we take a break for lunch, Judge? I mean, I --

THE COURT: It's about noon.

MR. ALDOCK: I don't want him to have an assignment over lunch.

MR. SHEFFLER: Let's go off the record for a minute.

THE COURT: All right.

THE VIDEOGRAPHER: Going off the record. The time is 11:59.

(Discussion held off the record)

(Recess taken.)

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Thereupon, the deposition was adjourned at 11:59 a.m.

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CERTIFICATE

I, Thomas F. Runfola, a Registered Professional Reporter, do hereby certify that I reported the deposition of Jeffrey S. Wigand, and that the foregoing transcript of such proceedings is a full, true and correct transcript of my stenotypy notes made to the best of my ability.

I do further certify that I was called there in the capacity of a Court Reporter, and am not otherwise interested in this proceeding.

_____
THOMAS F. RUNFOLA,
Registered Professional Reporter

_____
DEANNA S. CURTIN,
Registered Professional Reporter
Notary Public for the State of Kentucky.
My Commission Expires: _____

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